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PERSONNEL

Journal



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Volume 19

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The Cause for Which an Employee Leaves your Company, or is Discharged, as Stated on your Separation Report, may Determine Whether or Not He is Eligible for Unemployment Compensation Benefits.

Unemployment Compensation Benefit Decisions

By BYRON MITCHELL

Social Security Board,
Washington, D. C.

UNDER State unemployment compensation laws, only those workers are entitled to unemployment compensation benefits who meet certain specified conditions. To receive benefits, workers must be able and available for work and they must also be totally or partially unemployed, as defined by State law. Workers who have been discharged for misconduct connected with their work, who have left work voluntarily without good cause, who have refused suitable employment without good cause, or whose unemployment is due to a labor dispute, are disqualified for periods which vary in the State laws.

Decisions Available to Personnel Men

DECISIONS on such points, which determine under what precise conditions a worker is entitled to receive unemployment compensation benefits, have been compiled and reprinted in the Benefit Series of the Unemployment Compensation Interpretation Service, published by the Social Security Board. The Benefit Series, which was initially prepared by the Social Security Board for the official use of State employment security agencies, has now been made available on a subscription basis to the public because of the assistance it can render employers, their personnel managers, workers and their representatives. (U. S. Social Security Board. Bureau of Employment Security. Benefit Series, Unemployment Compensation Interpretation Service. Government Printing Office, Washington, D. C. \$1.00 per year. Monthly.)

In the Benefit Series, which is an authoritative source of interpretations, are reprinted each month the texts of the decisions, opinions, and determinations which

establish new principles and policies in any State, but repetitions within a State are omitted except when a State reverses or modifies its position stated in a published decision. Publication of any decision, opinion, or determination does not in any sense indicate approval or endorsement by the Bureau of Employment Security.

Precedents Indexed

THE Benefit Series not only reprints precedents established by the various State employment security agencies, but it also indexes them. Thus, under such a heading as "misconduct," it is possible to locate decisions on such alleged offenses as absence, insubordination, intoxication, violation of company rules, etc. Because such a subject as company rules may come up sometimes under the heading of misconduct, at other times under voluntary leaving, and perhaps at other times under labor dispute, a special index refers to all the places in which such a topic has been the subject of a decision. In this way it is possible to locate all cases which have involved company rules, regardless of the statutory provision under which they were considered. The index for each monthly publication is supplemented by a semi-annual cumulative index for the preceding six months.

Moreover, the grouping of decisions under such headings as "misconduct," with citations to actual cases for each of the various alleged offenses which has been the subject of a decision under this general provision, such as "absence," makes it possible to ascertain the conclusions reached by any given State or by all State agencies as to the conditions under which absence has been held to be or not to be misconduct.

Two Cases

THIS grouping of decisions makes it possible to locate decisions on the same point for the same State; to compare them; and to study the differences in the facts involved in a decision. Two Wisconsin decisions will illustrate the difference between absence from work under different conditions,—one set of facts was held to constitute misconduct; the other, not.

In one Wisconsin case a worker was discharged who failed to report for work because he had been detained out of town on personal business not of such an emergency nature as to justify this failure to report. However, the worker phoned a friend next door and, without authority, arranged that the friend assume his duties until his arrival. A discharge under these conditions was held to have been a discharge for misconduct, for purposes of unemployment compensation, which would disqualify the worker from benefits for the required period.

In another Wisconsin case an employee failed to report, but notified his employer in advance that he was ill and would be unable to work. The employer, who did not believe the employee was ill, discharged him. After a hearing before an impartial tribunal, where the evidence disclosed that the employee had actually

that all the employees were held not to have been guilty of misconduct for the purpose of unemployment compensation, and eligible for benefits even though his employee had discharged him.

Typical Decisions from Different States

The following list of typical decisions is quoted below in order to give a better idea of the work of the Board and of the type of decisions rendered by the Board.

Failure to Wear Safety Shoes

State of Wisconsin
Unemployment Compensation Commission
Appeal Tribunal
No. 37-A-11

The employer denied unemployment benefits, claiming that the employee was discharged for misconduct connected with his employment. The commission deputy's initial determination sustained the employer's denial. The employee appealed.

The employer's benefit liability report and supporting letter alleged that the employee was discharged for refusing to purchase and wear safety shoes as required by a company rule, and for refusing to follow instructions.

Based on the record and testimony in this case, the appeal tribunal makes the following

FINDINGS OF FACT: During the early part of June 1936, the employer posted notice urging all employees in the cleaning room of the plant to purchase and wear safety shoes in order to reduce the number of injuries to the feet and toes from falling materials.

On July 21 the company adopted a rule requiring all employees in the cleaning room where the employee worked to purchase and wear approved safety shoes by August 1. A copy of this rule was posted in a conspicuous place in the plant, and each employee was notified personally of its provisions by the foreman.

The employee's work was confined almost entirely to large castings weighing from 500 to 1000 pounds. He told the foreman that safety shoes would be inadequate to protect him from injury in the event that a casting fell upon him. The foreman agreed.

The employer did not insist that the employee wear safety shoes until the morning of September 2. On that day the foreman told the employee that he must wear safety shoes regardless of the type of work he was doing. The employee promised that he would obtain and wear them by the following morning. However, on the same afternoon (September 2) the employee was discharged, before he had an opportunity to purchase the shoes. Under these circumstances the employee's failure to wear safety shoes does not constitute misconduct.

The foreman who discharged the employee was hired by the company on July 20. He was dissatisfied with the output of the plant and the lack of discipline that existed when he was placed in charge. He proceeded to enforce discipline more rigidly. He was particularly dissatisfied with the employee's output and would have discharged him even if he had complied with the safety shoe rule. At the time the employee was discharged the foreman stated, "I've put up with you long enough. You're no good on the welding." There was no evidence that the employee's low rate of production was due to any misconduct on his part.

The appeal tribunal therefore finds that the employee was not discharged for misconduct within the meaning of section 108.04 (4m) (a) of the statutes.

Decision: The deputy's initial determination is reversed. Benefits are allowed accordingly.

Refusal to Accept Transfer

379 Wis. A

No. 38 A-16

Wisconsin Industrial Commission.

Decision of Appeal Tribunal.

January 1938.

Section 108.04(6): Suitable employment.

An employment in which the working conditions are substantially the same as in the claimant's former employment is suitable employment.

Fear that an employment is injurious to health is not good cause for refusing to accept otherwise suitable employment if the type of work offered is not subject to any special hazards or occupational diseases and the employer has complied with all the regulations for safety and sanitation.¹

¹ Syllabus supplied by the editor.

The employer denied unemployment benefits, claiming that the employee refused to accept suitable employment when it was offered to her. The Commission deputy's decision sustained the employer's denial. The employee appealed.

Based on the record and testimony in this case the appeal tribunal makes the following

Findings of Fact: The employee had worked in the bait division of the employer's plant and was laid off in calendar week 40 of 1937. She was offered a job in the employer's battery division in week 41. She refused it saying she didn't like that type of work. Subsequently, the employee alleged her reason for refusing the job was that she felt it would be injurious to her health.

The job offered was employment for which the employee was reasonably fitted, it was in the vicinity of her last employment, and would have given her wages in excess of her weekly benefit rate.

Working conditions in the battery division were substantially the same as those in the bait division where the employee formerly worked. The type of work offered was not subject to any special hazards or occupational diseases, and the employer had complied with all the regulations for safety and sanitation.

The appeal tribunal therefore finds that the employment was suitable and that the employee's refusal to accept it, within the meaning of the law, was not justified.

Decision: The commission deputy's decision is affirmed. Benefits are denied accordingly.

Wisconsin Industrial Commission, No. 38-C-8.

Reversed on appeal, 1938.

Case Appealed

18 W. R.

Wisconsin Industrial Commission.

No. 38-C-8

Wisconsin Industrial Commission.

January 1938.

Decision: The employment was suitable.

Wisconsin Appeal Tribunal Case No. 38-A-16, affirmed by the Wisconsin Industrial Commission.¹

The employee petitioned the Commission for review of the appeal tribunal's decision. The Commission has reviewed the evidence and finds that it supports the appeal tribunal's findings of fact. To the findings of the tribunal the Commission adds the following finding.

The employee's state of health was not such as to justify her in refusing the work offered, nor was it the reason for her refusal.

Decision: The decision of the appeal tribunal is affirmed subject to the inclusion therein of the above finding. Benefits are denied accordingly.²

¹ 1938 Wisconsin Reports.

² 1938 Wis. A. Benefit Series, U. C. I. S.

Where Health Injured

18 N. Y. A.

New York Department of Labor.

Division of Placement and Unemployment Insurance.

Decision of Referee.

May 19, 1938.

Decision: Refusal to accept an offer of employment.

A claimant who leaves work after a few days' trial because it affects her health adversely does not refuse to accept suitable employment.

Summary of Findings and Determination: The claimant, a typist and bookkeeper, was interviewed on April 25 at the local office. On April 29 an order was received by the local office from a nearby laundry for a clerical worker in the office. The claimant was interviewed and was told by the employer on April 30 to report for work on May 2. She did so and continued working until 1 o'clock of May 6, a period of 4½ days. The reason for her quitting was that the odors of chemicals, steam, and those

arising from the ironing of clothes disturbed her stomach and made her uncomfortable. She noticed this effect upon her the first day, but quit when she could stand it no longer and after getting her mother's permission to do so. She further testified that she has been under a doctor's care occasionally during the past 3 years for this condition, and she produced a medical certificate from the doctor taking care of her at present which stated that she was suffering from gastric disturbances. The claimant stated that although the working conditions in the office of the laundry were suitable, the duties of the job required her to go into the other parts of the laundry a number of times to check papers and tickets, and this affected her stomach, and she could not eat.

The claimant appears to be a fairly well-educated, intelligent girl of 22. She evidenced a cooperative attitude with the local office and showed her good faith by reporting the fact that she could not remain on the job within a half hour after quitting. This was verified by the employment interviewer.

The referee finds that under these circumstances, i.e., where an applicant quits a job to which she was referred, after $4\frac{1}{2}$ days of work there because of the fact that the work affects her health, the claimant is not disqualified from receiving unemployment benefits because of such quitting. The claimant is entitled to benefits after the normal waiting period, if otherwise eligible.

There is no refusal here to accept suitable employment, within the meaning and intent of our Law.

Onerous Working Conditions

526 N. H. A

No. 5-2370

New Hampshire Bureau of Labor.

Unemployment Compensation Division.

Decision of Appeal Tribunal.

June 3, 1938.

Section 4-A: Leaving work voluntarily.

A claimant who quits because she is not permitted to take a vacation, is not compensated for either sick leave or overtime, is refused an increase in pay, and is about to be replaced as a result of her efforts to have the amount of overtime reduced, leaves work with good cause.¹

¹ Syllabus supplied by the editor.

The employee stated on the initial claim that she was unemployed because she had left her last employment after an argument with the manager. The decision on claim imposed the penalty period for voluntarily leaving employment without good cause. The employee appealed from the decision on claim stating that there was sufficient cause for leaving.

Based on the record and testimony in this case the appeal tribunal makes the following

Findings of Fact: The employee had worked for the employer for 3 years and

during that time had been granted no vacation and was permitted no time off. The employee had been hired to work from 8 a.m. to 4:30 p.m. with a 1 hour lunch period. During the entire 3 years it had been customary to require her to work after 7:00 p.m. almost every night. On many occasions she had worked as late as 11:00 p.m. No overtime was paid on these occasions.

During the time this employee was employed by the last employer, she had been absent on account of sickness for approximately $4\frac{1}{2}$ days. Whenever she was absent from work, deductions were promptly made from her pay. In the month of January 1938, while the truckmen's strike was in progress in New Hampshire, she was employed only on Monday and Saturday of a week but received no pay for the work performed.

This employee was unsuccessful in all her attempts to obtain any change in the amount of her remuneration, which had remained the same during her entire employment. When objection was raised about the amount of time required, she learned that individuals were being interviewed with the understanding that if a suitable individual could be found, she would be discharged and replaced by such individual.

Decision: This employee left work voluntarily with good cause. Penalty period is not to be imposed. Unanimous decision of the appeal tribunal.

Value for Personnel Men

Such a compilation of decisions rendered under State unemployment compensation laws should be of assistance to personnel managers in the preparation of separation reports because it will enable them to determine for their own State whether a particular offense has been held to be misconduct, whether a particular grievance of an employee is good cause for voluntary leaving, etc. It should also be of assistance if it is desired to appeal a case, because it will be possible to ascertain the decisions rendered by the local State agency, as well as by other agencies, under similar situations and the reasoning developed in these decisions.

A Study of the Principles of Merit and Seniority
found Operative in Promotion, Demotion and
Termination Policies as Applied to Field Workers
in Seventeen Oil Companies in California.

Merit *and* Seniority

BY DONALD KARL LIVINGSTON

Hermosa Beach, Cal.

OIL workers and managements of oil companies have been much concerned with the principles of merit and seniority in promotion, demotion, and termination policies, particularly when they realized the importance of maintaining an efficient working force with a minimum of human waste. If merit is to be the governing principle, security of the working force will be sacrificed. If seniority is to be the governing principle, incentive and efficiency of the working force will be destroyed. Thus, it is essential that proper consideration be given to both merit and seniority and principles in promotion, demotion and termination policies.

Where an over emphasis, and/or exercise of either of the above mentioned principles exist, there are flagrant employee grievances which are brought in the form of charges of favoritism and discrimination by the workers.

Methods of Survey

FEW surveys of actual company policies and practices have been made. It becomes necessary, therefore, to gather data by three methods: first, personal contact with personnel representatives of several oil companies; second, published rules and regulations governing working conditions of the large oil companies; and third, letters and questionnaires specifically designed to meet the needs of this survey, sent to all seventeen oil companies.

The data compiled and herein presented are in accordance with the consideration that neither the names of the oil companies nor the officers submitting the

data would be essential. Each oil company is given an alphabetic letter in order to obscure their identities and maintain a distinction between companies.

Written Policies in Large Companies

Most all of the larger oil companies have written policies covering promotion, demotion, and layoff of workers, whereas, many of the smaller oil companies do not have written policies covering these matters. The advantages of published policies are as follows: (1) they furnish foremen and immediate supervisors, who are the front line of the management, something definite to go by; (2) they permit greater uniformity in application of policies; (3) they relieve the foremen and immediate supervisors in many instances of the responsibility of interpreting and applying unwritten policies.

Few in Small Companies

Few smaller oil companies have written policies in these matters. They place much reliance upon being closer to the workers than managements of larger companies try to their workers. Thus the smaller companies allow the foremen to exercise individual consideration in the selection of workers for promotion, demotion and layoff. The standard of this personnel practice, namely, the practice of allowing the foremen or immediate supervisors to exercise the principle of individual consideration without any written policy of the management, varies in direct relation to their abilities to rate the workers under their immediate supervision impartially and dispassionately. The nipping in the bud of small grievances aggregating around personnel transactions of oil workers, before they grow into festering sores, is predicated upon the principle of impartial and objective analysis of the workers in their "total situation", and their command of definite and specific knowledge of their department's and company's policies.

A personnel manager of an oil company with approximately 650 workers reports that, in their organization, before there was a personnel department, or written policies, and when the foremen and immediate supervisors had the sole authority to hire, promote, and fire, that twenty per cent of their total workers were relatives, a greater per cent were personal friends. Besides this unfavorable situation the personnel relations problem was increased because great differences existed in the practice of each foreman in favored treatment of friends and relations, in employment, promotion, demotion and layoff of workers.

The way, therefore, to preclude or alleviate possible obstacles to better standards of promotion, demotion, and layoff practices, is to provide policies in written form. Fundamental considerations in promotion, demotion and layoff should be stated briefly and clearly if written policies are to aid materially.

To be sure, assurance of better character of personnel practices is not in the attainment of comprehensive detailed description of rules and regulations attempting

to cover all personnel transactions in every conceivable situation. In fact, a large oil company in California which has attempted this technique, reports that more has been heard about seniority than ever before. Policies expressed in this matter hinder the foremen in making necessary immediate decisions, and fosters rigid and mechanical application of rules and regulations with a minimum of intelligence.

Principles in Promotion

A WELL balanced promotion policy provides a wise correlation of the principles of merit and length of service. Any insistence upon merit without recognition of past service in the same occupational field work is repugnant to security and efficiency of all, whereas only by a wise correlation of these two fundamental considerations and intelligent understanding of other factors can personnel practices be attained.

Ranking of Promotion Factors

EIGHT of the seventeen oil companies complied with a questionnaire requesting their ranking as to the six given promotion factors in accordance with their relative importance.

The following are arranged in order of their combined rankings:

- First: Merit, (Performance on a given job).
- Second: Competitive rating, (Comparative ranking with other workers performing the same work).
- Third: Seniority, (Length of service).
- Fourth: Approval of immediate superior, (Opinion of boss or foreman immediately above worker).
- Fifth: Case History, (Worker's experience, training and education previous to and during present employment).
- Sixth: Domestic responsibility, (Need of worker).

Seniority

OF THE seventeen oil companies, only the following two companies favored the acceptance of seniority as the governing principle in promotion policy.

Company B.

... Company considers seniority as basis for personnel transactions with few exceptions. Seniority begins 30 days after date of employment and continuous service record not to exceed 10 years shall be used in promotion of properly qualified employees. Properly qualified employees will be considered as established when an employee has accumulated 6 months service in that classification.

Company J.

... Promotion, in the Pipe Line Department, seniority is a hard and fast rule with few exceptions. In the Producing Department and Refining, seniority rule is used as far as practical (this seniority is mostly departmental).

Past experience of several oil companies with elaborate seniority plans have been unsatisfactory; these plans usually were the brain child of unions, employee associations or a small group of men representing management and the workers.

Elaborate seniority rules must be rigidly applied in order to be safe from charges of discrimination and favoritism by the workers and as a result, the operation of these plans in many instances proved unjust because they lacked flexibility, intelligent application of rules, etc. Again, seniority plans often fail to provide rules and regulations in every conceivable situation which, however, is necessary in order that immediate movement of personnel from one job to another may be made intra and inter organizations.

Such plans have proved unsatisfactory from the standpoint that in most cases they have burdened the clerical workers with tremendous details, particularly in the administration of the workers which may result in an endless retrogression. This method of handling the problem by elaborate seniority rules and regulations is most contrary to principles of fair play. It is as much to the interest and gain of the workers to see that efficient handling of personnel takes place, rather than a wasteful method, as it is the duty of the management to protect the security of the workers.

Merit

OF THE seventeen oil companies surveyed, the following expressed promotion policies consider merit as the governing principle.

Company A

For the purpose of promotion merit is our prime requisite. We recognize, however, the advantage of a stable and experienced working force and as such we encourage continuous service by giving preference, where possible, to older employees on point of service.

Company B

Best chance of ability and efficiency is the dominating factor in promotion.

Company C

In filling vacancies in the various positions, first consideration should be given to the placement of qualified employees already in the service of the company. (The most important consideration is the opinion of the immediate superior as to the worker's ability.)

Company F

... First: Ability and efficiency. Second: When all other things are relatively equal, including ability and efficiency, then seniority.

Company H

... In making promotions within the classifications of the employees to whom this agreement applied, the company considers first the qualifications of the man for the job and for advancement, taking into account ability and efficiency, and secondly, length of service.

Company I

Promotion, exercise the principle of taking into account (a) ability, (b) accomplishment, and (c) length of service

Company G.

... In a company the size of ours . . . employees may continue in a position where they are capable of doing the work and have other men better qualified pass over them.

All Factors

OF THE seventeen oil companies the following expressed promotion policies consider together merit, seniority and intelligent understanding of all circumstances as bases for promotion. These policies attempt to weigh properly all principles involved.

Company I.

... In making promotions, seniority is important and is one of the several factors given consideration.

Company K.

... We use seniority and merit in matters of promotion.

Company L.

... I have to advise that our ruling in this regard is quite flexible; seniority, commensurate with ability and efficiency shall prevail in all cases of promotion and filling vacancies.

Company M.

... We try to consider each man's case thoroughly prior to promotion. We give careful consideration to seniority, believing that a man who has spent many years in our employ is certainly entitled to every consideration where advancement is concerned. At the same time, however, we judge the man's ability, and try to maintain a high class organization, giving consideration to efficiency in work, education, possibilities which a man may have for advancement to positions of management, and all other phases.

Company N.

... Every case is handled on its own merits regardless of whether it is a promotion, transfer, demotion or layoff, and we try to see in every instance that the employee or employees involved, get the best possible deal.

Company O.

... Generally speaking, we have no predetermined plan respecting seniority and merit in matters of promotion, demotion and layoffs of employees, but we decide each case as it comes up in accordance with its own circumstances.

Company P.

... Promotions shall be based on qualifications, ability and seniority; in cases where there is any question between two men of equal qualifications and ability, preference shall be given to the man having greatest seniority.

Company C.

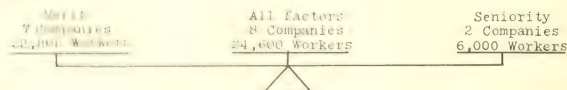
... In making promotions of employees from one classification to another, it is the policy of the company to take into consideration the ability and efficiency of the respective employees involved, and their length of service with the company where such continuous service is not less than one year.

Summary Regarding Promotion Factors

In the matter of promotion, 10 oil companies with approximately 22,700 workers considered merit as the governing principle, eight oil companies with approximately 14,000 workers considered merit and seniority and took into consideration individual circumstances, and only two companies with approximately 6,000 workers maintained a strict ascendency of seniority. Company B maintained a strict ascendency of seniority in promotion in all departments, and Company J applied the same policy and practice with few exceptions throughout the Pipe Line Department, and in the Producing and Refining Departments, in so far as it was practical.

All companies reserved the right to promote workers of outstanding abilities which actually proved the exceptions over and above the general practice. Workers with more years of service were given preference, where practical to do so.

Distribution of seventeen oil companies in accordance with their promotion policies outlined the following balance with regard to merit, all factors and seniority:



Demotion Policies

Generally, workers who are least capable, or whose services have on occasions been questionable, are demoted first. However, if the performance of workers are relatively equal, then the workers with least seniority are demoted.

Seniority

Respecting demotion policy, the following oil companies favored seniority as the governing principle:

- (1) Company A considers seniority as the basis for personnel transactions, with few exceptions.
- (2) Company C considers seniority as a guide and factor, with few exceptions, Pipe Line Department.
- (3) Company D considers seniority as a factor in promotion, Production Department.
- (4) Company E considers seniority as a factor in promotion, Refining Department.

Regarding promotion and demotion only two oil companies surveyed gave seniority their first priority:

Merit

CONSIDERING demotion policy, the following six companies took into consideration governing principles:

Company J

During promotions, consideration is not given to seniority. Seniority only gives preference in case of equal qualifications and ability.

Company D

During a promotion, consideration is given to seniority, but this consideration should not be so great as to give a head service man an advantage over a man who has equal qualifications but has a longer service. Seniority is taken into consideration in the Demotion Manual. But seniority should be taken into account in making demotion and not promotion, it should be the basis of the latter demotion.

Company F

Talent, ability, and achievement and before all things, long experience, including ability and efficiency, then seniority.

Company G

Employees who are unable to perform the work assigned may be discharged rather than demoted. Of course, they may continue in a position where they are capable of doing the work and have other men better qualified pass over them.

Company H

... In making promotions the company's management will consider: firstly; the qualifications of the man for the job. Secondly; length of service.

Company E

... Outstanding men are retained.

Company I

Demotions—exercise the principle of taking into account (a) ability, (b) accomplishment, and (c) length of service.

All Factors

WITH regard to demotion policy, the following six companies took into consideration all principles, namely, merit and seniority, and intelligent understanding of individual circumstances as bases for determining demotions. These policies balance the importance of all principles, giving proper consideration to each one.

Company P

... In case of demotions where there is any question between two men of equal qualifications and ability, preference shall be given to the man having seniority.

Company C

... In making reductions in force, it is the policy of the company to take into consideration the ability and efficiency of the respective employees involved and their length of service with the company where such continuous service is not less than one year.

...making... seniority is important and is one of several factors in promotion.

We...merit in matters of demotion.

...merit, commensurate with ability and efficiency shall prevail... reduction in employment.

...each case, is handled on its own merits and we try to see in every instance that the employee or employees involved get the best possible deal.

We have no predetermined plan in this respect but decide each case on its merits in accordance with its own circumstances.

Summary Regarding Demotion Factors

CONSIDERING demotion policy, seven oil companies with approximately 22,700 workers considered merit as the governing principle; eight companies with 24,600 workers considered merit commensurate with seniority and took into account individual circumstances. Only two companies with approximately 6,000 workers favored seniority as the governing principle. Company B maintained a strict acceptance of seniority in demotion policy, and Company J maintained the same policy and practice with few exceptions throughout the Pipe Line Department and in the Producing and Refining Departments so far as it was practical.

Termination Policies

DURING periods of layoff there occur demotions of workers to the unskilled classifications, who are selected by the operation of demotion policy. The demoted workers have less merit and seniority than those retained at higher classifications.

Many termination policies enclose an additional policy, that if the terminated workers are reemployed within a specific time, their back seniority will be restored.

Ranking of Termination Factors

EIGHT of the seventeen oil companies complied with a questionnaire requesting their ranking the six given termination factors in accordance with their relative importance.

The following termination factors are arranged in order of their combined ranking:

1. Merit (performance on a given job)

2. Seniority (being comparable ranking with other workers performing the same work)

3. Length of service

Fourth: Approval of immediate superior (opinion of boss or foreman immediately above worker).

Fifth: Case history (worker's experience, training and education previous to and during present employment).

Sixth: Domestic responsibility (need of worker).

Seniority

THE following oil companies favored seniority as the governing principle in termination policy:

Company B.

. . . Layoffs, company considers seniority as basic for terminations with few exceptions.

Company D.

. . . In releasing employees from the company's service due to lack of work, consideration must in each instance be given to the individual's length of service. It is the policy in reducing forces due to lack of work, to release first those who have been with the company the shortest period of time.

Company E.

. . . Company seniority is the dominating factor in terminations.

Company F.

. . . Terminations, first seniority, second ability and efficiency. Seniority is given more weight because of the human element involved.

Company J.

. . . Refinery Department, follows seniority rule as far as practicable in matters of terminations . . . Pipe Line Department, have a hard and fast rule to terminate on a seniority rule basis, exceptions are very rare cases . . . Producing Department, follows seniority rule as far as practicable in matters of termination.

Company N.

. . . When layoffs have been necessary we have made it a point to lay off employees last hired.

Company U.

. . . Where ability and accomplishments are approximately equal, the employee with the shortest term of service shall be laid off.

Merit

IN TERMINATION policy, the following oil companies favor merit as the governing principle:

Company A.

. . . During periods of curtailment, merit is our prime requisite. We recognize, however, the advantage of a stable and experienced working force and to this end we encourage continuous service by giving preference where possible, to older employees in point of service.

Company G.

. . . In a company the size of ours, we do not have layoffs of employees, avoiding this situation by contracting operations outside of the daily routine. Employees who are unable to perform the work assigned are discharged rather than demoted.

Company H

In making layoffs, the company considers first the qualifications of the men for the job and for advancement, taking into account ability, experience and generally, length of service. In the event an employee is laid off through no fault of his own, he will not lose continuity of service for purposes of promotion, demotion, layoffs and re-employment, if rehired by the company within one hundred eighty (180) days after layoff termination.

All Factors

The following oil companies take into consideration all principles, namely, merit, seniority and intelligent understanding of individual circumstances as bases for determining layoffs as to termination policies. These policies balance the importance of all principles without giving too much improper consideration to any certain case.

Company A

In making a reduction in force, it is the usual policy . . . to take into consideration the ability and efficiency of the respective employees (seniority and length of service with the company where such continuous service is not less than one year).

Company B

Lays and seniority are considered important factors.

Company C

Our ruling . . . is quite flexible. Seniority, commensurate with ability and efficiency, shall prevail in all cases of curtailment of forces and reduction in employment.

Company D

Inasmuch as our corporation is relatively small, we have tried to keep accurate information relative to all our employees through our superintendents, foremen, etc., and we try to consider each man's case seriously and thoroughly prior to layoff. We give careful consideration to seniority, believing that a man who has spent many years in our employ is certainly entitled to every consideration where continuance of employment is concerned. At the same time, however, we judge the need to lay off and try to maintain a high-class organization, giving consideration to efficiency in work, education, possibilities which men may have for all other phases of work.

Company E

. . . Generally speaking, we have no predetermined plan, but decide every case as it comes up in accordance with its own circumstances.

Company F

Laying off will be at the discretion of the company with the understanding that qualifications, ability and seniority will be given due consideration. Any employee who has completed more than six (6) months or less than one (1) year of continuous service whose services are discontinued for any reason, is reemployed within ninety (90) days, shall be considered a regular employee in point of service. Any employee who has completed more than one (1) year of continuous service

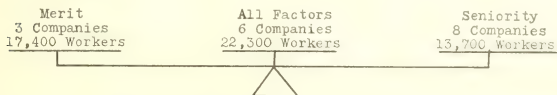
whose services are discontinued for any reason, is reemployed within one hundred eighty (180) days, shall be considered a regular employee in point of service.

Summary of Termination Factors

IN TERMINATION policy three oil companies with approximately 17,400 workers considered merit as the governing principle. Six oil companies with approximately 22,300 workers insisted upon equal consideration of merit, seniority, along with intelligent understanding of individual circumstances; and eight oil companies with approximately 13,700 workers insisted upon seniority as the governing principle.

It is well to note that more oil companies favored the principle of seniority in termination policy rather than in promotion policy. In fact, more oil companies sustained the seniority principle than any other principle in termination policy. It appeared that most oil companies have a humanitarian respect of the workers during personnel transactions involving layoff.

Distribution of seventeen oil companies, in accordance with their expressed termination policy about the point of equilibrium between merit and seniority were found to be:



From a study made as a partial fulfillment of the requirements for the degree of Master of Arts in Economics at the University of Southern California.

English Wage Problems Involve: Persuading Workers to make Sacrifices, which They Will Not Do Unless Profiteering is Absent; Avoiding Rapid Rises in Prices, Leading to the "Vicious Wage-price Spiral" by a National Savings Plan; and Avoiding Wage Competition between Employers.

Wage Policies in War-Time

By J. HENRY RICHARDSON

Leeds University,
Leeds, England

THIS article is based upon the assumption that a major war like the present demands substantial sacrifices from all sections of the community. There is general willingness on the part of the workers to bear their share, both in the productive effort and in the sacrifices involved. In a very real sense sacrifices are inevitable.

As the war proceeds there will be a growing shortage of those consumable goods which enter into the standard of living of the workers, both because of diminished amounts imported and especially because capital and labour must be diverted in such large quantities to the production of munitions and other war supplies.

Everyone Must Sacrifice

ASSUMING that there is agreement upon the inevitability of substantial sacrifices all round, the problem resolves itself into decisions about the most suitable methods. One preliminary condition is necessary if industrial peace is to be maintained in war-time.

The workers must be satisfied that the sacrifices they make will contribute to the national effort and not to increasing the profits of industry. It might be thought that this danger is removed by the excess profits tax and high income tax, but these would not in all cases be a sufficient guarantee.

Money Wages and Real Wages

THE workers are interested in their money wages mainly as a means of purchasing goods and services and, especially in war-time, they are keenly interested in the retail prices of commodities and, more generally, in the cost of living. They are

as interested as other consumers in the adoption of measures to avoid a succession of rises in the price level, which would seriously depress their purchasing power.

For this reason measures of price control attract them, and they also favour this method because it seems to offer a promise of preventing or greatly restricting profiteering. If, however, price control is to be effective it will need to be applied to a much wider range of commodities than at present, and should be based upon centralised action by the Government. Little reliance can be placed upon a system dependent upon complaints made by individual private consumers.

The main wage questions before the country are, however: (1) What policy should be adopted in view of the fact that since the outbreak of war the cost of living has already risen by about 14 per cent? (2) In what ways should the wage-earners contribute out of their income to the national effort? Some solutions of the second problem are outside the field of wage policy, though they would obviously affect the workers' standard of living.

Wages and the Cost of Living

IF WAGES are automatically adjusted by sliding scales to compensate fully for increases in the cost of living the country would run the risk of generating a "vicious spiral." There are various reasons why, in war-time, wage increases for all workpeople proportionate to the rise in the cost of living are impracticable or undesirable. All industries are not equally prosperous.

It would be difficult for industries which have been severely hit by the war to grant such increases, whereas industries which are exceptionally active as a result of war-time demands could afford to pay them without difficulty. The full maintenance of the purchasing power of workers at a time of severe shortage of commodities would, unless an extensive savings policy among the workers was applied, lead to a rapid rise in prices and to the evils of inflation.

Workers May Use Substitute Commodities

FOR moderate increases in the cost of living, for example up to 20 or 25 per cent., it is possible for larger numbers of workers to purchase commodities which have risen little in price in substitution for those which have risen considerably, and this can be done with little change in their standard of living. Allowing for the practicability of such changes, a rise in money wages of, say, 5 to 8 per cent. would, in war-time, be a reasonable compensation for a rise of 12 to 15 per cent. in the index number of cost of living. This is because the Ministry of Labour's cost of living index number is a measure of changes in the *cost* of an unchanged budget of commodities; it makes no allowance for changes in the commodities consumed, or for the effects of such changes upon *standards* of living.

The Problem of Low-paid Workers

IN RECENT years considerable attention has been given to the standard of living of low-paid workers, and estimates have been made of the amount of income necessary if poverty and privation are to be avoided. It is, of course, difficult to secure general agreement about the level at which the "poverty line" should be drawn. Nevertheless rough approximations have been made which are of practical value.

Inquiries into wage levels and standards of living show that considerable numbers of workers are living under conditions of poverty. The causes of this unsatisfactory state of affairs are various. Sometimes it is due to the worker's own inefficiency or to unsatisfactory ways of spending the wage he receives. Often it has been due to unemployment or under-employment, especially where the worker is employed in an industry suffering from depression. Sickness is sometimes a cause.

However, when allowance is made for all these factors there are many work people in regular employment whose wages are not sufficient to provide an adequate minimum of necessities if the number of dependents is considerable. In such cases poverty is caused by low wages and large families.

Clearly such workers have no margin of income which would enable them, even under war-time conditions to suffer a diminution in their standard of living or to make a direct contribution, through savings, to the war effort. Only by maintaining or improving their standard of living can their efficiency be assured, and it is necessary to do this if they are to make a sustained effort in national production.

Family Allowances

FOR the lowest paid wage-earners it would seem desirable not only that general cost of living increases along the lines indicated above should be granted, but that a system of family allowances should be adopted. This system should be applied to wage-earners whose full-time weekly wages are below £3 a week. (Approximately \$11.00).

The allowances might be payable for all dependent children, or alternatively for all children after the first, and the total amount of the allowances together with the cost of living increase should represent a percentage addition to their wages at least equal to, and preferably should exceed, the percentage increase in the cost of living for workpeople with two or more children.

This should, however, be subject to the qualification that as the wage approached £3 the scale of family allowances should be diminished so as to avoid the anomaly that workpeople with large families earning a wage of less than £3 should receive more in wages and family allowances than workpeople, also with large families, whose wages were more than £3 a week, but to whom the family allowance system was not applied.

The general principle underlying this system would be that no attempt should

be made to effect economies at the expense of the lowest paid wage-earners, but rather that poverty among this group should be diminished and their efficiency increased by such measures to raise their standard of living as are practicable in war-time. By limiting the application of the system to low-paid workers the principle that wages represent payment for work done would be maintained for all other categories of workpeople.

National Savings by Workers

SAVINGS or other economies amongst wage-earners as a contribution to the national effort are largely limited to the higher paid groups. The greatest amounts could be afforded by workers whose wages are high and who have few or no dependents. Also those enjoying considerably increased earnings in munition factories, especially where several members of the family are working, would be in an exceptionally good position to save.

Already large sums are being saved by individual voluntary arrangements under the National Savings Scheme, and many factories have organised facilities for the accumulation of the worker's contributions and for the purchase of the Savings Certificates. Large numbers of workers will no doubt retain their savings for use after the war. In this way they will avoid demanding consumers' goods during the period of the war, and will thus diminish the risk of rising prices, and will enable resources of capital and labour to be diverted to the production of munitions.

Such savings differ, as a contribution to the war effort, from the sacrifices demanded from the income tax payer, as the savings will be available for use by the workers after the war, whereas income tax payments represent a permanent loss of purchasing power to the taxpayer.

Will They Be Sufficient?

PROVIDED voluntary individual savings by the workers are made at a sufficiently high rate no further steps need be taken to restrain their war-time consumption, though, for other reasons, it may become necessary for the Government to raise increased amounts from the workers by taxation, whether indirectly, for example by a sales tax, or directly by a wages tax. Also the rationing of particular commodities, the supply of which is inadequate, must be maintained or extended.

If, however, voluntary individual savings prove inadequate, further measures must be considered. The system of compulsory savings, or deferred wages, proposed by Mr. Keynes, is one method. A method intermediate between this and voluntary individual savings might, however, be tried.

Firms in agreement with their workpeople could arrange for the amount of cost of living bonuses and increased war-time earnings, particularly from piece-work and overtime, to be paid partly in cash and partly in the form of savings certif-

Also this system might be applied throughout various industries by collective agreements between the employers' organisations and trade unions. The system would thus be elastic, allowing for variation from industry to industry.

The family allowance principle could readily be introduced, so that workers with large families would receive more in cash and less in savings certificates than those with few or no dependents. Similarly the lower paid amongst the wage-earners to whom the system would be applied might receive more in cash and less in savings certificates than those with higher wages.

It is understood that the scheme would apply mainly to workers whose wages were more than £3 a week, although workers somewhat below this level might be included if they had no dependents.

Wage Competition between Employers

ONE other war-time wage problem must be raised. There is considerable danger that shortage of labour, especially in munition work, may lead to competition between employers, higher wages being offered by some employers in order to induce workers to leave other firms. The cost of such additional wages would be passed on to the Government in calculating contract prices. Such competition is highly undesirable.

It would contribute nothing to the national effort and would increase costs to the Government, as well as creating discontent amongst the general body of workers if they saw inflated wages being earned by some workers as a result of this process. As far as possible industrialists themselves should deal with this problem, but in addition the Government should take steps to prevent it by its system of cost control for work on Government contracts.

Other Problems

WITHIN the scope of this article it has been possible to deal only with certain general problems of wage policy, and it is recognised that, in a more comprehensive review, many other aspects would demand consideration. These include the fixing of piece-rates for new work, the determination of appropriate rates of pay in processes where there has been dilution of labour, and the special problems arising where large numbers of women have been brought into munition work.

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Large Companies Do not Now Bring Personnel Men from Branch Plants into Head Office for Short Intensive Training Periods. Such a Program Might Aid in Ensuring Full Adoption of Main Company Policies in Scattered Plants, and thereby Improve Labor Relations in Them.

Agriculture Department Trains Personnel Men

BY PRESLEY W. MELTON

Fairfax, Virginia

THE United States Department of Agriculture has some hundred-thousand employees of its own, and supervises about twice as many more who are paid by the C.C.C., the W.P.A., and the N.Y.A. There are personnel officers in the twenty-six bureaus and two-hundred regional offices. There is a central Office of Personnel. In this central office there are training representatives.

In order to improve the efficiency of the service, and the understanding between Head Office and field offices, and to aid in the introduction of new personnel methods, such as classification, the bureaus and regional offices send in to the central office in Washington personnel men for short periods (two to three months) of intensive practical training in all or some phases of government personnel administration.

Personnel Knowledge Requirements Increasing

THE United States Civil Service Commission, the United States Comptroller General's Office, and the United States Compensation Commission enforce laws that affect employees of the Federal Government. Their regulations are more detailed, more intricate, and more comprehensive than those affecting employees in industry, which are enforced by the Social Security Board, the United States Employment Office, the Wage and Hour Division of the Labor Department, the National Labor Relations Board, and state compensation commissions.

A personnel officer in a Government bureau must keep up to date on changing laws and regulations in order to keep the wheels of his bureau turning smoothly.

He also needs to know as much about the human-relations aspects of his job as about the personnel office to industry.

Content of Training

THE content of the training depends on three variables: the employee's prior experience, the length of time he is detailed to the central office, and the job to which he will be assigned when he returns to the bureau. Of employees recently in training, one had had six years of personnel experience in a bureau with excellent personnel offices. Another had had seven years' experience in a first-class personnel office in a private business but no experience in the Federal Government.

Of two other employees recently in training, one has returned to a regional field station, in complete charge of a personnel office. He was given training in all phases of Government personnel administration. At the field station, where he has nobody to lean on, his reports and recommendations must be technically correct when they are sent in to Washington—otherwise they would have to be corrected and sent back. Lack of knowledge of administrative regulations on the part of field employees is a common source of delay in getting the work done in a Government bureau.

Specialized Training

ANOTHER employee was to return to job classification work in his bureau upon completion of the training, he was given intensive training in the Division of Classification, Planning and Surveys of the Office of Personnel, and the corresponding division of the Civil Service Commission. That was about all that he was given; he received some training in other phases of personnel administration, but not much.

Bureau and regional personnel offices are comparatively small, their work load is heavy, and it is not possible to detail an employee for training that he cannot apply immediately on his return to his regular job. Skill or knowledge is retained better if it is put to use as soon as it is taught, and the best time for training is just before or just after the employee is given a new assignment. Training in the broader aspects of personnel administration for the classification investigator must wait until the employee is given a job where he will use it.

How Training Given

SO much for the subject matter. Now, as to the training method: the employee on detail is kept under the general supervision of the training office, but the actual training is given almost entirely by the supervisory staff of the Office of Personnel. The employee is given no textbook and no written material of any kind other than a list of questions he is expected to answer and use as a basis for a

reference handbook. Division chiefs in the Office of Personnel are responsible for checking the accuracy and completeness of the reference book.

During five days of each week, the employee on detail works under the direction of the supervisor to whom he is assigned, doing the regular work of the section. He makes about the same mistakes that he would make if he were working in a field personnel office in San Francisco or Minneapolis. The supervisor shows him how to do the work and corrects his errors.

The learning process is more rapid and better organized, and the mistakes he makes do not interfere with operations as would be the case if he were trained by trial and error as a part of his regular job in a field office with little or no supervision. The essence of the training is to have the employee make all his mistakes on his training assignment, so that he will avoid the same mistakes on his regular job. The experienced, competent supervisors of the central Office of Personnel make the best possible instructors, provided the training officer shares the responsibility.

Duties of Training Office Man

WHERE does the training office representative come into the picture? He makes schedules and checks up occasionally to see that pseudo-training methods are not used. Sorting finger-print cards or other routine clerical work takes the employee off the supervisor's hands, but does not help him absorb much knowledge about personnel administration. The check-up may find the employee at a desk in a corner reading a book on personnel administration prescribed by the supervisor. There is little profit in bringing an employee all the way from Spokane to Washington to read any kind of a book.

Sometimes the training officer will find the student pretty well worn out by a two-hour monologue from a supervisor. Just talking about swimming or personnel administration never develops much skill on the part of the learner in either field. Training properly given takes up much of the busy supervisor's time, but the supervisor learns to regard the training as an investment that will pay dividends, in the form of increased bureau personnel office efficiency, when the employee returns to his regular job.

Group Training

SATURDAY mornings are reserved for group training. The employees on detail from bureau personnel offices are brought together with several other students on training assignments of one kind or other in the Office of Personnel. The group conference gives them an opportunity to discuss their problems with each other and with supervisory employees in the Office of Personnel, the Civil Service Commission, and other Government agencies. There follows an illustration of an assignment for Saturday morning discussion:

"The name of an employee in the Soil Conservation Service, located in Texas, was drawn for jury duty in a Federal Court. Overriding the pro-

tasks of the employee, the Judge compelled the employee to serve on the jury for two weeks. How would you handle the matter of leave and pay? Give citations."

Since special legislation and regulations control the conditions under which a Government employee serves on a jury, the problem requires considerable study. A full-time employee cannot receive additional compensation for services to another Government agency—in this case, a Federal Court. The employing agency cannot pay the employee while he is absent from work, except when he is on annual leave, and the employee cannot take annual leave without prior permission. The personnel officer of a Government bureau must be as well informed on these technical matters, as is a personnel officer of industry about the regulations of the National Labor Relations Board.

Final Examination—a Survey

AFTER completing his training in the Department's Office of Personnel, the employee visits a nearby regional personnel office of one of the bureaus, makes a survey of current practices, and recommends changes. His report is a final examination of his ability to apply what he has learned on the job. The purpose of the training is to help the employee acquire the skill and knowledge that he will need to solve the problems he encounters in his everyday work. In each office he visits, he learns about objectives, policies, procedure, facilities, organization, and supervisory personnel. The questions the employee uses as a basis for his visit to a regional personnel office follows

Survey of Field Office Problems

FIELD CLASSIFICATION PROBLEMS

1. Is there a staff man responsible for job classification?
2. Do organization charts show clearly lines of authority?
3. Are there cases of divided authority and responsibility?
4. Do employees, supervisors, and executives know precisely their lines of authority and responsibility?
5. Are staff and line jobs clearly differentiated?
6. Are job descriptions accurate, complete, and concise?
7. Are wage levels properly adjusted to the value of the work performed?
8. Are there makeshifts and evasions in the classification of jobs?
9. Are there complete records and other facilities for classification analysis?

EMPLOYMENT AND RECRUITING PROBLEMS

1. Is a staff man given responsibility for employment activities?
2. Does appointment machinery operate effectively and rapidly?
3. Are the minimum qualification standards of the Personnel Classification Program realistic?
4. Are estimates of future personnel requirements made periodically?
5. Do recruitment contacts maintained with the Civil Service Commission, local offices, other government agencies, universities, and other sources of applicants?

AGRICULTURE DEPARTMENT TRAINS PERSONNEL

6. Are interviewing procedure and facilities adequate?
7. Is the application file classified and kept up to date?
8. Is proper attention given to probationary reports?

PROMOTION AND SEPARATION PROBLEMS

1. Are vacancies usually filled by promotion or transfer?
2. Are employment records adequate and properly filed for promotion and placement use?
3. Are efficiency reports used for placement purposes?
4. Do supervisors and executives develop understudies?
5. Are separations made tactfully?
6. Are separation records analyzed and the analyses used for placement work?
7. Are the employees generally qualified to do the work to which they are assigned?

TRAINING PROBLEMS

1. Is there a staff man responsible for training activities?
2. Is the training carried on by supervisory staffs, directly by instructions from the personnel offices, or by outside agencies?
3. Is the training program well-balanced—including employees of all ranks?
4. Is the training given on the job, by round-table discussion, or by lectures or manuals?
5. Is training limited to specific instruction in the employee's immediate job or the job to which he is about to be assigned?
6. Are training programs given on Government time and at Government expense?
7. Are employees advised on the selection of correspondence and evening study courses?

EMPLOYEE RELATIONS PROBLEMS

1. Is there a staff man responsible for employee relations?
2. Are employee recreational and social activities encouraged?
3. Are employee clubs, unions, and other organizations encouraged?
4. Is there recognized procedure by which employees or employee representatives can bring grievances directly to the attention of ranking executives?
5. Are donations held to a reasonable minimum?
6. Is there a reasonable hospitalization plan in operation?
7. Are there employee savings and loan associations?

WORKING CONDITIONS AND SAFETY PROBLEMS

1. Is there a staff man responsible for safety or working conditions?
2. Do records show more than a reasonable amount of overtime?
3. Are provisions made for avoiding, so far as possible, inconvenient hours of duty?
4. Are annual and sick leave regulations reasonable?
5. Do records show an unreasonable number of absences from work?
6. Is emergency and first-aid equipment adequate?
7. Is proper attention given to safety devices, instructions, and records?
8. Are employee facilities—lunchrooms, restrooms, lockers—adequate?
9. Are working quarters healthful and comfortable?

A Man from Oklahoma, whose Business has grown from 60 to 1,000 Employees in the Last 15 Years, and is Thinking of Setting up a Personnel Department, Recently Asked What such a Department Would Do

Personnel Work for 1000 Employees

By EDWARD N. HAY

The Pennsylvania Company,
Philadelphia, Pa.

THE main divisions of personnel work, in a small or medium sized office or business are:

1. Employment, transfers, promotions, separations.
2. Employee records.
3. Personnel policies.
4. Salary administration and hours of work.
5. Training and education.
6. Employee relations.
7. Economic security.
8. Health.

Employment, Transfers, Promotions, Separations

THIS is the very heart of the personnel job, and certainly the most important function. The young people hired today will be the supervisors and officers of tomorrow. There are all kinds of ideas about how to hire. For example, there is the old-timer who says, "On Mondays I turns down all men with white collars; on Tuesdays all men with black eyes; on Wednesdays all men with blue eyes; red-headed I never hires, and there do be days when I hires only every tenth man."

When we first began to consider better ways to hire better employees, we looked around to see whether there was some way of finding out things about people that we could not tell by just talking to them. We commonly think of scientific and engineering methods, involving experiment and exact measurement, as responsible

for our technical advances in industry. Was it likely that psychological methods, the only corresponding ones in learning about human beings had advanced to the stage where we could use them to help in hiring?

It seemed possible, so we experimented with them. There were many enthusiasms and disappointments in the early years of trying to use psychological methods, but now after five years experience we feel that we have learnt how, and are certain that now we cannot do without psychological tests in employment work.

It took us time to learn how to use them satisfactorily and, of course, they cannot be used alone; that is, test scores unaided do not tell whether to employ a person or not. They do, however, give important information which cannot be obtained in any other way and as a result of our experience we can say confidently that to do the best employment job it is necessary to use tests. Because of the difficulty in using them satisfactorily it takes a good deal of time and experience and study. It is unfortunately not just a matter of common sense.

When Promotions from Below

WHEN it comes to promotions and transfers, test information helps the decision a great deal. Promotions are made from men already in junior positions. Consequently we have to exercise great care in employing beginners, because if we don't get some good ones in the crop, we won't have any who can be promoted satisfactorily. Then we would have to hire outside.

While it is not necessary to require that every department receive the approval of the Personnel Department before transfers, promotions and separations are made, it is an important factor of safety if this is done. The way to accomplish the result is to have a Personnel Department so competent, and so much "on the job," that it helps the other departments so much that they do not attempt these things without the help of Personnel. Of course, in employment the best policy by all means is to require Personnel to approve new candidates.

This comes about naturally by having Personnel make the selection in the first place, and submit the candidates to the department where the position is open. If this is not done, there is little point in having a Personnel Department. However, this places on Personnel a heavy responsibility for good selection.

How Much Employment

TO GIVE you an idea of how much employment we do, we have in the last few years employed the following number of persons to maintain our total staff of nearly 1200:

EMPLOYED TEMPORARILY		EMPLOYED PERMANENTLY	
1937	11½	12½	25½
1938	87	100	287
1939	83	80	163

These 100 new employees were selected from a total of 2434 new applicants and they came from the following sources:

Of the 2,454 applicants for jobs, nearly 2,000 were not hired because of inadequate or not suitable experience, too young or too old for available jobs, etc. The essential facts about the persons were obtained in one or more interviews.

Public Relations Problem

FOUR hundred and fifty-eight looked as if they might suit our requirements. So we gave them psychological and job tests to check up on the facts about these persons, which we felt might not have come out in the interviews. Finally we hired about one third of them. This indicates a suitable and economical use of psychological testing.

It will be noted that we finally employed in the company, only one out of every fifteen applicants for a job. Dealing with the other fourteen, in a proper manner, is also one of the most important jobs of a personnel department. It requires much patience, sincerity and courtesy to ensure that they do not go away from the employment office with a bad impression of the company, and an embittered view of life.

Employee Records

WE HAVE had only one record of any importance requiring attention to keep it up to date. This is a simple Kardex card 6" x 8" in size, on which are recorded the important facts regarding an employee. Much of this is taken from the original application blank and the remainder represents Changes in Status such as new address, transfer to another department, as they occur, etc.

We have recently developed a new record which, however, is not complicated, and which does not entail any duplication of information. This we call the "qualification card." Along the top of the card is a series of numbers on which are placed colored tabs. These indicate different types of qualifications such as Experience in various departments on certain machines, differences in Education, Test Scores, and so on. The color of the tab indicates the degree of each quality or qualification. Thus college education has a red tab, part college pink, high school green, and so on, and this color scheme is repeated for all the other qualifications. As you can imagine, a card with all red tabs would represent a person of extremely high qualifications.

The only information entered on these cards besides the location of the tabs is a record of the reports of employees' performance on the job. These are entered on

successive lines as they are received. The cards are filed according to date of birth in order that when an employee of a particular type is being sought, a limited number of cards can be picked from those of men of the right age and qualification. Cards for women are kept in the same manner, but they are filed in a separate cabinet.

The original application blank, and copies of the forms showing changes in status, are filed together in a loose-leaf file, and these three records are about all the information we need for any employee. As interviews or reports are received on an employee, they are placed in this loose-leaf file. In setting up these records we have been careful to avoid unnecessary ones and to eliminate duplication. We find after six years experience that they work very well.

Personnel Policies

AN IMPORTANT part of the work of the Personnel Officer is helping in the determination of policies, and their reduction to writing. This is something which usually takes place in piecemeal fashion as the problems arise. In our case we have reduced to writing about 20 policies in the course of about two years. They relate to such matters as Vacations, Financial Assistance to Employees, Separation Allowances, and so on.

We believe that policies which are definite should be put in writing so that the employees know exactly where they stand. The Personnel Department has made these policies available to the employee magazine from time to time through articles written in a popular style. The editors of the magazine have been glad to get them, and they seem to have proved of interest to employees.

We have as yet no handbook containing all these policies, but at some future date we shall probably have one.

Salary Administration and Hours of Work

EVERY employee expects to be properly paid for his work. Realizing this, we have given unusual attention to the problem. During the past six years we have used several different methods, the latest one being known as the Factor Comparison Method, which was installed in 1938. This gives us a very satisfactory and, we think, accurate basis for determining the proper salary for each position. Each job has been assigned to one of 21 different salary classes, each of which carries a definite minimum salary and an equally definite maximum. Every employee, therefore, is paid a salary between the minimum and maximum, which is appropriate to the importance of his position as determined by careful study.

In order to gain the valuable assistance of the operating departments, and also to secure the good will of those departments, the work has been done under the supervision of a committee of five senior operating officers. The detail work was done by the Personnel Department, but all job values were submitted to the committee before being put into force.

Individual salaries are adjusted by discussion between the department heads and the Personnel Department. Of course no salary can be increased beyond the maximum of the salary grade to which it has been assigned, and likewise the business cannot pay less than the minimum. Within these limits it is the privilege of the department to make its recommendations.

This plan of classifying salaries not only makes it possible to deal fairly with employees but also enables the company to obtain better control over its salary costs. Salary classification is therefore one of the most important aspects of personnel work. It is also very difficult, requiring a high degree of skill and considerable knowledge of salary classification methods.

Wages and Hours Act

IN CONNECTION with salary analysis, the hours of work are a matter of concern to the Personnel Department. In some companies great care is exercised to see that employees work standard hours, neither more nor less. Many companies, long before the Wage and Hour Act was passed, required departments to obtain written approval before permitting men to work overtime. This was true of salaried employees as well as of hourly rate employees, and was a practice followed by many large companies in spite of the fact that they did not pay extra for overtime work.

It was, however, desirable to regulate hours and prevent some departments working short hours and others very long hours. Such a policy is objectionable and a source of employee dissatisfaction. Since the Wage and Hours Act was passed, it has become essential that somebody keep track of the hours worked by salaried as well as by hourly rate employees, in order to avoid the unnecessary payment of overtime. This is a function which usually belongs with the Personnel Department and involves watching the time records.

Training and Education

THIS is another important division of the Personnel Department work. There are a wide variety of courses especially suitable for the younger employee. There are courses in accounting, commercial law, credit analysis, economics, and many other subjects. Our Personnel Department consults with every employee, who thinks he would like to take these courses and helps in his choice.

It is the company's policy to refund the tuition cost of such courses, provided the employee completes them satisfactorily. In the past there was a great deal of indiscriminate and unwise choice of courses, but under the present method few employees fail to complete their courses satisfactorily. They seem to appreciate the opportunity to discuss their educational problems.

A number of other aspects of training have been handled. One of these has been instruction in adding machine operation, classes being held for 45 minutes, three times a week for the messenger boys. A number of boys have also been studying

typewriting, inasmuch as we have a number of positions which require men who can type. Other training programs probably should be undertaken but we have not as yet been able to inaugurate them. One of these is a training course for junior supervisors, and for selected employees who are being considered for promotion to supervisory positions. Courses of this kind are usually given in industrial companies and they would probably be of service in offices.

Employee Relations

IT is our policy, when an employee has a grievance, to discuss it fully with him at once, and to adjust it immediately. It is our belief that only in this way can employee morale be preserved. Since the advent of the Wage and Hour Law, we have had a number of complaints bearing on that subject, and have in each case met them promptly by discussing and adjusting the grievance.

The Personnel Department also serves as a place of inquiry for employees. Many questions on which employees wish information are answered here. Among these are questions relating to promotion or transfer, in addition to the education counselling which has already been discussed. Financial troubles also bring a good many employees to the Personnel Department, often because they do not wish to discuss problems of this sort with supervisors.

Another place where contact is made with employees on a favorable basis is through the company employee magazine. One of my assistants is skilled in work of this kind and was invited to become a member of the editorial staff. This permits her to obtain information on company policy, which is prepared in a form interesting to employees, and is submitted to the editorial board. Her work has been an important contribution to the improvement of the paper and employees seem interested. This is done, however, with no attempt to dominate the editorial policy of the paper.

Economic Security

WE PROVIDE continuance of salary in the case of sick absence, following the policy that employees may be absent, within the discretion of the department head, up to a maximum of one week for each year of service but not exceeding seven weeks in all. When the deadline is reached, the case of the employee who is absent because of sickness is reviewed carefully with the department head, and presented to the Council for discussion and for extension of sick leave, or for other action.

The company policy in this respect is rather liberal and there is no cost attached, so far as the employee is concerned, in receiving sick benefits. The company provides life insurance without cost to the employee in the amount of one year's salary, and the records and relationships with the insurance company are maintained by the Personnel Department.

Provision for retirement has not been made formally, but the Personnel Department has given a great deal of study to it in the last three or four years. A plan has

been prepared which is ready for adoption whenever business conditions permit the company to undertake the expense.

Health

WE HAVE a Registered Nurse and a well-equipped dispensary and women's rest-room, where all who have accidents or minor ailments can be cared for. The company calls on the services of a doctor when emergencies require it, and for health inspection in extreme cases. The nurse also visits the homes of employees who are absent because of sickness. For example, in 1939 our nurse treated 2940 cases, of which 102 were accidents, and made no less than 248 visits to employees who were sick. Our records indicate that attentiveness, by the nurse to cases of sickness, has had the effect of cutting down the amount of sick absence.

These eight divisions of the work of the Personnel Department give you a general idea of the personnel job. There is one final element of the personnel job not mentioned. Without it the best personnel man is ineffective. Some people call it "salesmanship." That is, the personnel man must not only do good work, but he must convince the rest of the organization that what he is doing is the right thing. He must sell himself and his policies.

Perhaps indoctrination is a better word than salesmanship, because it means impregnating the thinking of the rest of the organization so thoroughly that, after a time they do not question the soundness of personnel policies and methods, whereas selling is usually regarded as a one-time operation. The personnel job certainly cannot be put over by a single sales effort. There must be constant indoctrination of the organization so that there is a complete understanding of personnel policies and methods, and a willingness to act accordingly.

Thus personnel work not only must be well done, but it must also be well sold.

All Employees Constantly Rate their Supervisors,
when They Get Together to Carry on Discuss
Their Work and Their Grievances, Formally or
Informally. Companies Have not yet Devised
Ways of Finding out These Ratings, though the
Information would be Most Valuable.

Rating of Supervisors by Subordinates

BY ISADORE J. MELSHER AND IRVING WEINSTOCK
New York, N. Y.

THE customary objective of all rating schemes has been to obtain an index of efficiency of employees. All methods, heretofore, have operated on the principle of ratings from above, i.e. supervisors rating subordinates, down through the entire hierarchy of authority. It is proposed here to present a possible scheme of having supervisors rated by subordinates.

Advantages of Employees Rating Supervisors

THE advantages of such a rating method would be:

It is axiomatic that in any rating method, all other factors being equal, the greater the number of raters, the more reliable will the final rating be.

Subordinates are often in a better position and have more opportunity, through constant contact, to judge their supervisors. The relationship of the supervisor to his superior is generally a more limited one, in that the latter is most likely to see the former on his best behaviour.

Mutual ratings between supervisor and subordinates should promote sympathy and understanding for each others problems. By allowing a general participation in office government, employees are given a sense of belonging.

It should produce a more efficient supervisor. The knowledge that he is being evaluated by his subordinates, as well as his own superiors, should cause him to be more alert and more receptive to criticism.

This method, when supplemented by the usual method of rating from above, will give a more rounded picture.

This "worm's-eye" rating method may serve as a check on a supervisor's rating. If a wide variance is obtained, it would indicate the need for further study.

Disadvantages of Scheme

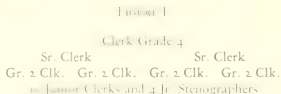
The disadvantages of this scheme might be:

Supervisors might attempt to curry favor with subordinates by relaxing standards and refraining from necessary criticisms, thus bringing about a breakdown in office morale.

Supervisors, for fear of getting low ratings themselves, may make their ratings spuriously high.

As ratings are anonymous, no appeal is allowable and there is no possibility of review. Subordinates with real or fancied grievances may find this a means for "getting even."

As an experiment, this method of rating was tried out in a fairly large office. The unit is headed by a Grade 4 Clerk who supervises 2 Senior Clerks, 4 Grade 2 Clerks, 10 Junior Clerks and 4 Junior Stenographers. The hierarchy of authority and supervision may be presented schematically as:



Because of the nature of the work, the direct supervision of the Grade 4 Clerk extends throughout the entire unit hierarchy. Although the unit supervisor delegates some authority to his immediate subordinates, who, in turn, exercise some supervision, he maintains constant and intimate contact with every member of his unit. Therefore, every individual within the unit is in a position to form a valid opinion of the unit supervisor, the Grade 4 Clerk.

Due to the experimental nature of the plan, it was decided not to obtain ratings for each level of authority. As a preliminary step toward putting the plan into effect, a training meeting was called. The method of rating was explained in detail. It was made clear to the group that as the ratings were to be anonymous, they should be frank and objective (no hint as to the experimental nature of the plan was given to the group). The group was especially cautioned against comparing ratings amongst themselves.

At the conclusion of the instructions, rating sheets were passed out and 10 minutes was allowed for recording scores. Figure II shows the rating scale used.

RATING OF SUPERVISORS BY SUBORDINATES

FIGURE II

Evaluation Form for Supervisors

For Period

Name of Supervisor

Title

I. Administrative Ability

Grade

1. Ability to organize work
2. Gives direction clearly
3. Makes good decisions quickly
4. Actively participates in work of unit
5. Ability to train and improve subordinates
6. Inspires team-work and cooperation amongst subordinates

II. Relationship to Staff

1. Doesn't display unreasonable or unnecessary authority.....
2. Defends subordinates against unjust criticism.....
3. Attempts to resolve employee grievances
4. Amenable to criticisms and receptive to suggestions
5. Doesn't play office politics.....
6. Abstains from "nagging" or "snooping"....

In the above rating scheme, the qualities listed and described are to be judged on a scale of five (5) points. If you believe that the person being rated is outstanding in that quality, or has a very marked degree of excellence in that quality, you are to rate him five (5); if you believe that the person being rated exhibits marked inferiority in that quality you must rate him one (1). In the same way, intermediate degrees of excellence should be rated accordingly.

Rate Every Item. Be as objective as possible.

Do not discuss or compare your rating with your fellow employees

The distribution of rating scores obtained is given below.

Range of Rating Scores	No. of Employees Rating Supervisor so
26-30	1
31-35	1
36-40	3
41-45	3
46-50	5
51-55	4
55-60	3
Average....	46.4

Inasmuch as the authors were not interested in the scores *per se* but, rather, in the distribution and the consequent inferences which might be drawn from it, several facts became immediately apparent:

3. Although the evaluation scores of 10 or 11 (the maximum of 12) the quantitative method of rating had a tendency to attract from 4 through 10.
4. The anonymity of the method allows the probability that an honest evaluation was generally obtained.
5. The only positive comment is, of course, the one almost perfect score of 10 awarded to the subject, a possible criticism of the rating scheme in this type of study. Individuals in subordinate positions seem to be incapable of making quantitative discriminations of their superiors.

The purpose was to indicate a method whereby supervisors may be rated by subordinates, to point out the possible advantages and disadvantages, and to give an account of a situation in which such a plan was tried out.

The results obtained in this particular instance can certainly not be considered conclusive; the group, although large for a rating purpose, was still too small for making elaborate statistical studies; no rigid experimental techniques were attempted. The authors hope that they may have the opportunity to make a more extended study in the near future.

Meanwhile, the authors believe that the disadvantages are not insuperable, nor, indeed, are they as great as they first appeared.

- a. The supervisor might attempt to carry favor with subordinates.
- b. Inasmuch as ratings by the subordinates are anonymous, there is nothing to prevent an honest evaluation, no matter how ingratiating the supervisor attempts to be. Further, if the supervisor becomes too suppliant, an honest evaluation would reflect this fact.
- c. Supervisors, aware that they are being rated from above as well, will realize the inadvisability of being too pliant, as the resultant damage to their morale will have an adverse effect on the supervisor's rating.
- d. There is no chance for review in anonymous rating.
- e. The authors do not recommend that this type of rating be used in the ordinary quantitative fashion. It should be used to guide the supervisor's superior in arriving at his evaluation insofar as it may offset any negative or positive halo effect in the mind of the superior.

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The Dissatisfaction of Workers over Wage Inequities, the Extension of Wage Negotiations in Collective Bargaining, and Government Measures for Regulation of Wages have Led an Increasing Number of Companies to Rationalize their Wage Structures

Job Evaluation *in A Paper Plant*

By EUGENE J. BUNGE

Chicago, Ill.

AROUND here they never pay any attention to rates," said one worker to another as they were leaving the plant at the close of a working day. "It burns me up about that big lug who was transferred from the Inspection Department to our department. He don't turn out near as much as I do, yet he gets 35 cents an hour."

"Yeah, you're right," rejoined the other. "It took me four years to get the skill to do my job, yet I know a fellow that came with the company three months ago over in the Shipping Department and he started for as much as I get now. The foreman there always did pay big. My foreman's a tightwad."

Pressing Problem Today

SUCH conversations can be heard in the vicinity of many plants, more often, probably, than most executives suspect. Employees feel intuitively that there should be some logical basis for difference in rates,—some guiding justice to preside over the wage scale.

Executives are faced with the problem of developing a defensible method to measure the relative values of jobs so that the rate for each one will be in proper relation to the others, taking into consideration the differences in mental, skill and physical requirements; the responsibilities; and the working conditions applying to each job.

To ignore this problem paves the way for serious dissatisfaction. Employees may falsely read into management's failure to solve the wage problem, a disinterest

in all employee problems. A very few rate inequalities may be sufficient to start serious trouble. Even where discontent has not yet crystallized into action, it can scarcely be expected that a group of dissatisfied workers will be highly efficient.

On the other hand, a company which bases its wage rates on a careful study of the requirements of each job demonstrates both leadership and impartiality. "They sure do try to be fair to everybody," is the expression heard as the employees leave that plant.

Although the effect of job evaluation on employee morale is most stressed these days, the effect on the stability of unit labor costs is not to be ignored. Moreover, substantial savings sometimes result from the studies of basic work incident to job analyses.

The development of a satisfactory method for measuring job values is a pressing problem facing many executives today. To be satisfactory, a plan must be equitable, applicable to local conditions and understandable to employees. It is highly desirable that it permit comparisons of job requirements and rates as directly as possible—not through the use of some indirect valuation terms familiar only to experts.

A certain mid-western manufacturer of paper specialties felt the need for a satisfactory plan to measure the relative values of jobs. Management first experimented with a point system, but it proved to be poorly suited to the particular situation. Finally, this company used, with satisfaction, the factor comparison method described here.

Job Analysis First Step

THE first step was to make a careful analysis of each distinct job in the plant. The analysts interviewed the employees at their work stations, recording in detail the education and trade knowledge required; the kind of skill involved and the time necessary to acquire it; kinds and amounts of physical effort; responsibility for machinery, materials or the work of others; and the conditions under which the employee was required to work.

The interviewer's approach was friendly and the contact pleasant. The employee saw the notes the analyst made, had opportunity to amend them, and to call attention to anything he considered important about his job. The employee was always thanked for his cooperation.

In the second stage of the work, the analyst developed a job specification for each job studied. The specification (See Figure 1) presented a concise description of the job duties, and pertinent information classified according to the five comparison factors:

1. Mental Requirements
2. Skill Requirements
3. Physical Requirements
4. Responsibilities
5. Working Conditions

Supervisors approved all job specifications before they were used in evaluation work.

To get an idea of the relative skill required for two jobs one needed but to place the skill columns of two specifications side by side for comparison, a very easy thing to do. Similarly, comparisons of jobs could be made according to any of the other factors. However, it would be a very cumbersome task to compare all jobs, two at a time, by each factor. Hence, as is customary under the factor comparison method of job evaluation, a key job comparison scale was prepared.

Another reason for the key job comparison scale is that some method of applying *wage rates* to job relativities is needed. Mere comparisons among jobs would not indicate the values of particular amounts of responsibility, or of skill, or of physical effort, etc.

Key Jobs Compared

IN MAKING such a comparison scale, the problem is to select a few representative jobs which are in proper relation to the average of all and to appraise each factor of each selected job. Other jobs can then be compared, one factor at a time, against this scale (see Figure 2).

Committee of Five Set Up

SOME jobs obviously were unsuited for possible inclusion in such a scale. After considerable analysis and discussion, some twenty-five were selected as possible key jobs. A committee of five, consisting of two department heads, a rate engineer, a time study engineer, and a consulting management engineer then proceeded to rank these twenty-five jobs, first, as to mental effort, secondly as to skill, then as to physical effort, responsibility and working conditions, putting in first rank the one of the twenty-five jobs which in their judgments required the greatest degree of the factor under consideration. The rankings of the different committee members were averaged, after comparisons had been made and members had been given opportunity to change their rankings following discussion.

After average rankings had been computed, each member of the committee determined what portion of the present rate for each job he considered was being paid for each factor. Thus, for a common labor job which is being paid at the rate of 40¢ per hour, a member might make an apportionment as follows:

Mental effort.....	2
Skill.....	3
Physical effort.....	2
Responsibility.....	3
Working conditions.....	8
Total.....	4

The ratings of the members for each factor were then averaged.

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Job	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Rank
1						31
2						30
3			Tour Boss			29
4	Tour Boss					28
5			S. Dept. Fmn.			27
6						26
7						25
8						24
9		S. Dept. Fmn.				23
10			P. Mch. Tender			22
11		P. Mch. Tender				21
12	P. Mch. Tender	P. Mch. Setup Man				20
13						19
14	D. Mch. Setup M.	SN Setup Man		D. Mch. Setup M.		18
15			P. M. Laborer			17
16	SN Setup Man	D. Mch. Operator				16
17	P. Mch. Operator		Tour Boss	SN Setup Man	P. M. Laborer	15
18			C. Mch. Feeder	C. Box Inspect.		14
19		C. Box Inspect.	P. Mch. Tender	D. Mch. Operator	Tour Boss	13
20	C. Box Inspect.		D. Mch. Operator		P. Mch. Tender	12
21		Env. Inspector	D. Mch. Setup Man	Env. Inspector	C. Mch. Feeder	11
22	Env. Inspect.	C. Mch. Feeder	SN Setup Man		D. Mch. Operator	10
23			Env. Inspector		D. Mch. Setup Man	9
24	C. Mch. Feeder		S. Dept. Fmn.	C. Mch. Feeder	SN Setup Man	8
25		P. M. Laborer	C. Box Inspect.		Env. Inspect.	7
26					S. Dept. Fmn.	6
27	P. M. Laborer			P. M. Laborer	C. Box Inspect.	5
28						4
29						3
30						2
31						1

Next, comparison was made between the position of a job in each factor on the ranking sheet and the position of the same job in each factor on the money value apportionment. Obviously, the job which ranked highest in skill should also be the job for which the committee apportioned the highest money value for skill, the one which ranked second should be the one to which the second highest amount

of money was apportioned, and the one which ranked lowest should also be lowest in money value for that factor.

However, it was found that some jobs carried rates too large to permit a spread which would place them in proper rank,—others were being paid too little. Jobs with rates which resulted in the greatest discrepancies between factor rank and rating were eliminated and the process was repeated with the remaining ones. At last ten jobs remained, each of them with factor money values corresponding to its rank positions for the five factors. These ten were listed on the job factor comparison scale in the style shown in Figure 2. This scale became the measuring stick by means of which the different factors in all other jobs were evaluated.

Putting the Valve on Jobs

THE work of evaluation was done by committees consisting of the rate engineer, the time study engineer, a consulting management engineer, the foreman of the department concerned and an hourly rated employee who was selected by the employees. The three engineers sat on all committees.

To evaluate a job, each member of the committee was given a copy of the scale and specifications for all the jobs on it, together with specifications for the jobs to be rated. After reading the entire specification of a job to be rated, the member concentrated his attention on the items in the mental effort column. He considered whether the mental requirements were equal to, greater than, or less than those of a tour boss, 5 department foreman, paper machine tender, D machine operator or other job on the scale. He might decide that the mental requirements were greater than those of the D. machine set-up man and, therefore, he would rate the job at 19¢ for mental effort.

From five to ten jobs were rated in each factor before consideration was given to the other factors. Skill, Physical Effort, Responsibility, and Working Conditions were rated in the same manner as Mental Effort. Each member submitted his rating for entry on a blackboard. He was given opportunity to explain reasons for his rating, and to change his rating if discussion showed him that he should. The ratings of the five members were finally averaged for each factor, and the five averages totaled to get the evaluated rate for the job.

The evaluated rate might be higher than, equal to, or lower than the present rate. Theoretically, there should be about as many jobs which evaluate higher than current rates as those which evaluate lower. Actually, it was found that the average of all rates after evaluation, varied only a fraction of one per cent from the average before the evaluation work was done.

Adjusting Pay Rates

THE company decided to give immediate effect to all increases. Employees already receiving more than the evaluated rates for their jobs were to continue at the higher rates until normal labor turnover, transfers, and promotions gradually

took care of the situation. Evaluated rates which were lower than current rates were to be effective as to new employees, or to those transferred from other jobs. No employee was made to suffer a decrease in earnings as a result of the job evaluation. This policy resulted in a small immediate increase in payroll, most of which should be eliminated in the course of two or three years. The management believed that the employee good will, which would result from such a policy, would more than warrant the small temporary increase in the payroll.

Results Secured

The results of the job evaluation work secured by this manufacturer can be summarized as follows:

1. Stabilized labor costs. By avoiding the repeated pressure of employees for rate increases, the company not only avoids higher labor costs, but it also avoids the discontent incident to an unsystematized method of rate handling.
2. Job descriptions. These can be used for improvement of selection, for building specific training programs, and for the compilation of practical pre-employment tests.
3. An evaluation scale. This consists of the key jobs analyzed by factors as shown in Figure 2, and may be used to settle any rate disputes and to establish hourly rates for new jobs. It will also be used to establish base hourly rates for piece work jobs.
4. Satisfied employees. Employees have the satisfaction which grows out of knowledge of how the work was done, that some of their own number sat in the deliberations, and had as much part in setting the rates as did anyone of the other members of the evaluation committees. They feel that each job has been carefully considered and compared with the key jobs in a way that assures fairness to all.

Which is Most Significant? Conclusive Answers
to Specific Questions about Wage Setting, etc.,
or a Development in the Understanding of Hu-
man Situations which Would Help to Improve
Relations and to Resolve the Problems Arising
in Them?

Psychology *and* Management

BY WALLACE H. WULFICK

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IN A recent monograph "Propaganda for Democracy," Paul Garrett of General Motors points out that "The times in which we live might well be called days of *The Great Indecision*. Never have so many emotional currents tugged at mass sympathies, or so many tides in conflict been loosed to sweep away judgments. Never have there been such deliberate pressures upon individuals and groups of individuals."

Management needs no prophet to tell it that technological problems, while they still exist, are secondary. The primary problem of industry, politics and world economy is a problem of human relations. Moreover, industry and management need no seer to point out the fact that the behavior of man is the nub of the matter.

Are there Laws of Behavior?

WHAT are the psychological foundations of management? They must be the laws of human behavior. They are found, in the dynamics, the energies and the satisfactions of the workers who comprise an organization, and the satisfaction of the public served by that organization.

(By workers is meant all employees whose cooperation is necessary to a successful operation, including the executives themselves. By the public we mean actual and potential customers, actual and potential stockholders, actual and potential voters, and any one whose goodwill might help or whose ill-will might harm a company.)

The staff of an army can enforce cooperation on the grounds of patriotism and

analysis. Managers, whether real or virtual, must realize that their is a double-edged sword. One hand that holds a stick, the other hand holds a dagger. — *Longman* (online press) I would have dismissed it as a naive, innocent suggestion. I would not yet admitted the potency of simple perception. It took me 2 1/2 hours to admitted, questioning possibility.

What are old systems? History, culture, perception. When someone possibilities of a behavior of man, a behavior without giving the man a choice on human nature. Managers who seek to construct a system of management of machines, machines, machines? (Hawkins, 1997) A human perspective that can take care of the dynamics of the human system. That would require a complete conflict of physical, spiritual, and intellectual, a total of the human condition. It would demand rather than just.

Human Psychology

Even attitudes with the best of intentions can be twisted to doing a harm. — *Walter* (online press) I would not have dismissed it as a naive, innocent suggestion. I would not yet admitted the potency of simple perception. It took me 2 1/2 hours to admitted, questioning possibility.

Through this type of thinking, management has tried to construct a system of management which not seem to be so simple. — *Walter* (online press) I would not have dismissed it as a naive, innocent suggestion. I would not yet admitted the potency of simple perception. It took me 2 1/2 hours to admitted, questioning possibility.

Quantum and Management Failure

Consider, for example, some of the ways management has helped mankind — increasingly complex human situations.

1. *Social Security*. The managers of industry, especially of insurance companies, have been largely responsible for the American period of social security, one so popular. Through group insurance, through pension plans, stock options, profit sharing plans, management has for years been doing its utmost to ease the miseries of unemployment and the needs in old age. Was management correct in its conception of social security? Is it possible that security can be desirable, rather than constructive? Is security a virtue that personality needs to possess, which undermines personality and therefore security is false.

2. *Consumer*. Management has often resorted to persuasion. It is a common practice

table and lasting social expression of human nature which should not be resisted, or is it a social phenomenon of specific but temporary significance? Is it a cultural necessity or only a useful expedient? Conflicting personal opinions and often force now settle this question, without adequate knowledge or research to guide decisions.

4. *The Salaries of Important Executives.* Does the public resentment aroused by high salaries represent a true measure of the value placed by the public on the services of management? In what terms and upon what terms do most people evaluate industrial leadership?

5. *Education.* Industry and managers of industry are largely responsible for the financing and often the development of education, especially the higher forms of education. Does this education reflect a sound conception of human nature? The studies of many psychologists lead to the conclusion that it does not. But, before any final answers are given, the problems must be submitted to exhaustive investigation. What kind of education can management or should management support?

6. *Elementary Economics.* Management has come to the conclusion that workers and the public should be educated in the elementary facts of economics. If our elaborate plan for free education has not already done this, what hope is there in the efforts of management unless conceived on a sounder concept of human nature than that of the schools?

More Psychological Research Needed

PUBLIC RELATIONS. The current panacea of a Public Relations program, and a Director of Public Relations, reflects the need for more research into the psychology of human relationships. Public relations activities can do no more than reflect private relations. The mere appointment of a public relations counsel or director is no solution for the problems of public relations.

It may be, however, a step in the direction of acknowledging the need for specialized research into the dynamics of human relationships. It may be a step toward the discovery of public relations in terms of its living elements, namely, the attitude of every manager toward his subordinates, of every supervisor toward his workers, of every worker toward the public.

There are but a few of the fields in which decisions have been and are being made in the absence of adequate research to guide them.

Dr. Frank B. Jewett Quoted

D^{R.} FRANK B. JEWETT, President of the Bell Telephone Laboratories, discussing "Research in Industry" points out that: "The principal thing which distinguishes the world of the past one hundred fifty years from the ages of human history which preceded has been the wide-spread acceptance of the so-called scientific method as the best, most powerful and most expeditious means of exploring the unknown, and the results that have followed that acceptance. Fundamentally it

is nothing but an idea—the concept that the surest way to test a hypothesis is to subject it to a succession of simple controlled experiments, each of which can be repeated at will, and to be guided rigorously by the result. To be successful its votaries must observe strict intellectual honesty. Recent history shows that in this concept man has hit upon one of the most, if not the most powerful tools for change ever created."

But nowhere in his brilliant presentation does he so much as infer that the scientific method can and should be applied to *men* in industry.

Scientific psychology (not psychoanalysis or psychiatry which are separate clinical disciplines), those men who, by the application of the scientific method, are developing a science of man has made surprising progress in two directions. On the one hand it has developed certain empirical, i.e. observed, laws of individual human behavior, and methods for controlled study of the individual. On the other hand, it has devised new and important methods for the study and prediction of group behavior, attitudes and opinions.

The unfortunate part of the progress has been that the work has largely been confined to the college laboratories, with few resources and little encouragement to push it.

Men Who Have Applied Psychology

ONLY a few men have had the courage and conviction to apply these new techniques to the problems of industry and politics. Among them, such men as Henry C. Link, George Gallup, Walter V. Bingham, Elton Mayo, Charles S. Slocombe and Elliot Dunlap Smith.

Scientific men devoted to "pure science" have always looked with suspicion upon the "applied worker," while industry has felt the psychologist "professor" knew little or nothing about the point of view and problems of management and industry.

For the most part, the last accusation is true. But, the complete ignorance of industry of a mature psychologist, at the time when he might begin to tackle an industrial problem, does not militate against his usefulness to industry.

For he brings to the solution of say, a labor relations problem, a knowledge of quite a few laws of human behavior, which apply to all humans, whether in factories or the wilds of darkest Africa. The industrial men, with whom he works in the solution of the problem, can supply all the necessary industrial information.

How Problems Are Solved

IT is the addition of the psychologists knowledge, to that of the industrial men, which can bring about the solution of problems, which industrialists alone have so far been unable to solve.

Moreover, management, while it has shown some impatience at the time-

consuming application of the scientific method to physical research, has often been downright intolerant of the time and money necessary to do the same thing in human research.

It is unfortunate, for both industry and psychology, that the psychologist in industry has largely been restricted to the job of developing tools and programs for the selection and placement of personnel. Perhaps it has been the psychologist's fault that he has not had opportunity to work in the wider areas of industrial interest. In so far as it has been his fault he has failed to serve both men and management and has been a traitor to his science.

Psychology is a recent science, but there is a growing number of executives whose minds are open to the possibilities of psychological research, who encourage and initiate such research, who coordinate its results, and who act as the ambassadors of such research to the other members of their organization. It is through such men, and their appreciation of the possibilities of applying psychological principles to practical problems, that the foundations of management will come to be better understood.

Contrasts Old and New Views

THESE executives are quite different from those industrial giants of the past who, by sheer conviction and power, established their personal philosophies of management with conspicuous success. These giants were bent on proving their own beliefs about human nature and did temporarily. The executives I speak of as modern executives are interested in discovering those forces which will enable their fellow executives, and management generally, to build on the enduring elements in human nature, for the benefit of society at large.

These are the executives to whom psychology must look for encouragement and for guidance, if our civilization is to bring to fruition its promising contributions to the understanding of human nature.

Good Lighting Involves, the Proper Amount and its Proper Distribution to Ensure Absence of Glare, Troublesome Shadows and Dark Surroundings. Good Vision Involves Good Lighting, Adjustable to the Work and the Individual, and Correction of Eye Defects

Work *and* Its Illumination I

By C. E. FERREE AND G. RAND

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WE HAVE conducted experiments and research for more than twenty-five years on the best working conditions for the eye. Results of these researches have been printed in various papers, more than seventy-five in all. It is our purpose in this paper to bring together briefly in an easily comprehended and conveniently accessible form some of our more important and practically significant results and conclusions.

Important conditions for the safe and comfortable use of the eye include those pertaining both to work and to its illumination.

Illumination of Work

WITH respect to the illumination of work we have found the best conditions to be given by daylight or artificial light, closely approximating daylight, in color and composition, and as closely as possible in diffuseness. Other topics to be considered are: distribution or placement of light and brightness, intensity of light, relation between intensity of light and strength of reading glasses, glare, evenness of illumination and the mixture of artificial light and daylight.

Color and Composition of Light

MANY of the so-called artificial daylights are of more harm than benefit to the eye. In the selection of an artificial daylight great care should be taken that the light obtained has a proportion of wave-lengths, well balanced with respect to the welfare and comfort of the eye, such as is found in natural daylight. A close ap-

proximation to natural daylight in this respect is Mazda light filtered through the two types of glass furnished by the Macbeth Daylighting Company—Daylight and Whiteallite. Not every blue glass can be used to advantage as a filter for Mazda light.

On examination with the spectrophotometer the blue bulb of commerce shows an excess of light in the region of the green in the spectrum. Also, the glass used in making this bulb is not carefully standardized; that is, it is variable in its filtering properties. Tests made by us for ocular fatigue and discomfort with this lamp gave poorer results than those made with unfiltered Mazda light.¹ Such tests, so far as we know, have not as yet been made with various synthetic daylights.

Maximum Visibility in Daylight

DAYLIGHT, too, because it best brings out the natural brightness and color difference between objects gives to the eye its highest power to discriminate between objects and between objects and their background; in other words, it gives to objects their maximum visibility. This is particularly true for the discrimination of black on white, the task presented by reading the ordinary printed or written pages. The light selected for the illumination of the work, if not daylight, should be as free as possible from color and should approximate daylight as closely as possible in composition. On the colored lights, when equalized in brightness and saturation, we have found by tests of visibility, speed of discrimination, power to sustain clear seeing, and tendency to produce ocular fatigue and discomfort, that the best results in all these respects are given by yellow.^{1, 2} The tests were made with both mixed and spectrum lights. It should be clearly borne in mind, however, that light unbalanced toward any color when used to illuminate the work is a detriment, not a help to the eye.

In case of some eyes even the amount of color present in Mazda light is fatiguing and uncomfortable to the extent of rendering night work practically impossible. In these cases we have found that Mazda light, properly corrected for color and properly diffused, has restored the possibility of night work, and has been almost if not quite as comfortable as daylight. In most eyes this extreme intolerance for colored light is not present at medium intensities. In all eyes, so far as we know, a clearly marked intolerance for colored light becomes manifest at the higher intensities in the form of an increased susceptibility to glare.

Diffuseness of Light

DIFFUSION of light is very important to satisfactory visibility. That is, if the light is not well diffused all points in the object are not adequately illuminated, and hence cannot be clearly represented in the image that is formed on the retina. Perhaps the most important difference in the illumination given by daylight and artificial light is in the diffuseness of the light. The high diffuseness of daylight gives to

objects much greater visibility, and has much less tendency to produce glare. The superior illuminating value of north skylight has long been recognized. Its whiteness and maximal diffuseness give to objects high visibility and their natural color and brightness difference. Its comforting softness is also due to its high degree of diffuseness, consequent freedom from glare and to its tempered intensity. In the production of illumination effects lighting experts have been slow to recognize the full significance of diffusion, and to put into practice all that can be accomplished by the use of adequate diffusing means. In fact in the present race for high intensities adequate diffuseness of light is being more and more overlooked and sacrificed. On both counts, the use of excessive intensities and poor diffusion of light, great harm is being done to the eye.

Distribution of Light and Brightness

ONE of the most potent causes of eye discomfort and eye fatigue is the presence of high brightnesses in the field of view.³ High brightnesses are most often due to the light source, the lighting fixture and the immediate surroundings. In the lighting of a room high brightnesses need never be and should never be tolerated. In addition, however, to the elimination of high brightnesses there is the further important question of the optimum placement of medium and lower brightnesses. This is still an outstanding problem even in modern lighting.

The problem of the placement of light and brightness has been created with the devising of lamp shades for shielding the eye from glare, and later giving these shades a reflecting lining to conserve and direct the light. When the opening of the reflector is turned down (direct lighting), the light is directed towards the plane of work, and the walls and ceiling are left dark or very poorly illuminated. On the other hand, when it is turned up (indirect lighting), the light is directed to the ceiling, and from there reflected to other parts of the room.

This results in a disproportionately high brightness of ceiling, and a correspondingly low intensity of light on the plane of work. Relief from the glare of the opening is obtained at the cost of a bad and inefficient placement of the light. As a compromise between these extremes in the placement of light, recourse is made to inverted translucent bowls or housings, which reflect part of the light to the ceiling, and transmit part laterally and downward (semi-indirect lighting), to opaque housings and reflectors, which direct part of the light upward and allow part to pass downward (direct-indirect lighting), and to diffusing globes. While these units give a better placement of light than either totally direct or totally indirect units, the protection afforded against glare is far from adequate.

The next step in the development of lighting fixtures has been the use of baffles, in such a way as to give the minimum of interference to the distribution of light from the source, and the maximum of protection against glare. Glare baffles, as originally devised and described by us, may be defined as a plurality of non-

reflecting light shades of suitable size and shape, having themselves a negligible brightness, which are so worked into the design of the fixture, or housing of the source of light as to completely shield the eye from the glare of the lamp itself, and all auxiliary reflecting surfaces and, in case of general illumination, to give such wide and uniform distribution of light as to eliminate entirely all high and uneven brightness on walls and ceiling. This development has been discussed in former papers. With the use of these baffles in connection with a direct-indirect type of unit and in other ways, it is possible to improve the placement of light and brightness and at the same time completely shield the eye from glare.

Best Place for Light

IN OUR judgment and experience the most favorable placement of light and brightness is to have the maximum on the plane of work, and with respect to walls and ceiling, at least in rooms of moderate height, to have it near the level of the eyes of the worker, with an even and gradual decrease upwards and downwards, thus giving the upper walls and ceiling, for example, less than maximal brightness. The use of baffles makes it more nearly possible to design fixtures that will accomplish this effect.

An important feature in the further development of lighting is a provision in the unit itself of a means for varying placement of light to suit the needs of the individual situation. One of the difficulties in securing good lighting effects, at present, is the lack of flexibility and variety in respect to placement of light. The units of stock or standard type differ rather widely among themselves in this respect.

Thus it is somewhat difficult to adapt the units, that are available to such situations as are presented by different sizes and shapes of room, heights of ceiling, characteristics of walls and ceiling with respect to contour and surfacing, purposes for which the room or enclosure are to be used, etc.

This difficulty is sometimes met by using units of special design and more than one type, located to give the placement of light and brightness desired. It would seem that the better way would be, as indicated above, to provide in the unit itself means for varying the placement of light. Such units have been devised by us for both general and local lighting. As yet none of these has been described with the exception of one of those devised for local lighting.

In connection with the distribution and placement of light and brightness it may be noted that light or illumination carries the idea of affecting visibility, while brightness carries the idea of glare, particularly harmful glare. The effect on visibility applies especially to the working plane and the objects that have to be seen. Brightness, on the other hand, is especially important with regard to walls and ceilings where visibility is not the major effect to be achieved but the avoidance of glare, the annoying and disagreeable effects of unevenness of brightness and extreme contrasts, brightness unfavorably placed, etc.

With respect to the placement of brightness it can be readily seen how very important it is that the vanes which are used for varying the placement of light and brightness should be made separately adjustable. This we have done in the construction of our units.

Local Lighting

IT is in local lighting, however, that the means for varying the placement of light and brightness have their greatest possibilities. Here it is easier to place the light where it is wanted and with better effect. One very important effect is that it is possible, in the designing of local lighting units, practically to eliminate glare from the working surface without undue loss of luminous efficiency, by combining in the construction of the housing an intensity control, and a means for varying the direction and placement of light on the work. These effects have been accomplished by us in a bed reading lamp,⁵ a desk or table lamp, and a floorstand lamp.

Intensity of Light

THE optimum intensity of light varies widely for different people; also it varies with the kind of light used, the range of toleration for intensity of light being much greater for daylight than for artificial light. If too little light is used low visibility results, and if too much is used the excessively harmful effects of glare are experienced.

In tests on 550 people, 100 of each decade age group from 10 to 60 years and 50 above 60 years, we have determined the amount of light preferred for reading 10-point type, the upper and lower limits of intensity for comfortable reading, and the range of amount of light that could be used with comfort. The cases included high school, normal school and college students and faculty, industrial and clerical workers, nonpathologic clinic patients, visitors to the laboratory, etc. In taking the test the subject wore the glasses usually used for reading. No special attempt was made to verify the accuracy of the distance correction and the strength of reading glasses worn because it was thought that in this way a better sampling of the population could be made with respect to its actual working conditions. Space will be taken here for only a brief statement of the results.

The Preferred Amount of Light

THE tests showed that around 70 percent of those tested preferred less than 15 foot-candles (ft-c) for reading 10-point type and 50 percent less than 11.3 ft-c. Forty-eight percent preferred between 7 and 12 ft-c inclusive. There is a wide variation of preferred foot-candles for each decade age group and for the group as a whole. A few people preferred a very low intensity, 5 percent preferring less than 4.9 ft-c. In one of these cases the preferred intensity was as low as 1 ft-c and the upper limit for comfortable reading as low as 2.5 ft-c. In certain others the pre-

total intensity was 1.5 ft-c and the upper limit 3 ft-c. These cases were not confined to any particular age group. However, they do occur most frequently between 35 and 40 years.

A few people, on the other hand, preferred high values ranging from 20 to above 30 ft-c. 5 percent of the group preferring more than 36.5 ft-c. The cases preferring high amounts of light also were distributed in all age groups, but occurred least frequently between 20 and 30 years. The wide individual variation with respect to the amount of light preferred for reading, even for a single year age group, is a most outstanding and important characteristic of the results obtained, more outstanding and important, for example, than any general trend or group variation. Indeed so strongly marked is this result that light prescribing by individual or group testing should be considered a requirement of hygienic lighting and the safe and comfortable use of the eye. With our variable illuminator and auxiliary equipment the test can be made very easily and requires but little time.

This instrument is described in "Lamp for the Determination and Measurement of the Preferred Intensity of Light for Reading and for Other Work," Archives of Ophthalmology, 1934, Vol. 12, —, 45-59; "Examination and Care of the Eye in Relation to Lighting," *ibid.*, 1937, Vol. 17, pp. 78-103, and "Prescribing Light. An Important Factor in the Care and Treatment of the Eye," British J. Ophthal., 1938, Vol. 22, pp. 641-669. It may be obtained from the American Optical Company and E. B. Meyorowitz Surgical Instruments Company.

Individual Picks His Own Light

AS a still more satisfactory solution to the problem of regulating intensity to suit the needs of the individual, we have devised lighting units provided with a simple mechanical means of varying intensity from high to low without changing the color and composition of the light or the location, size or shape of the illuminated area. These units again comprise a desk and table lamp, a floorstand reading lamp and a bed reading lamp. With them by turning a knob the individual can set the intensity at just the value he may prefer at any time and for any kind of work. So far as we know, it is only in some such way as this that the problem of regulating intensity, to suit the individual case and situation, can be handled with a result that is really completely satisfactory.

Young Eyes

THE following additional points may be briefly noted: From 10 to 20 years a tendency is shown to prefer more light than might be expected in young eyes, more for example than is preferred from 20 to 30 years. Possible reasons for this are the characteristically lower sensitivity to glare in eyes in this age group and the generally poorer refractive correction that is found. Also the high mobility

of the pupil of the young eye has an effect, but this effect in relation to the point under consideration is too complicated to be discussed here.

Above 35 years there is a general tendency to prefer more light for reading than below 35 years. This tendency is especially marked in the group of developing presbyopes (35 to 50 years). This is probably due to the fact that in this group the eyes are changing in their refractive condition more rapidly than at any other period of the working life, so rapidly that it is difficult to keep them continuously properly corrected; and a poorly corrected eye, because of the blurred images that are formed on the retina, requires more light for the discrimination of its detail than a properly corrected eye. Also the increased amount of light narrows the pupil which in turn helps to clear up the image.

Older Eyes

HOWEVER, a surprisingly large number of the developing presbyopes preferred very small amounts of light. This is probably caused by an undue prevalence of an irritable condition of the eyes due to the poor refractive condition. Also during this period a great deal of strain is caused by the rapidly growing disturbance in the relationship between accommodation and convergence, and by other changes and conditions due to the beginning of old age. Until a toleration or adjustment is acquired for these disturbances, as occurs in more established presbyopia, undue irritability and susceptibility to glare are experienced. Strange as it may seem to some, the group above 50 years of age conforms most closely to the total group as to distribution of amount of light preferred for reading. However, it should be remembered that in this group the eye presumably has its refractive errors well corrected and has acquired an adjustment and toleration for the changes that have taken place during the development of presbyopia.

Less Benefit Thru More Light

IN CONNECTION with the old eye it is a point of interest, too, that while it needs more light as an aid to vision, it receives less benefit to vision through increase of intensity of light than the young or middle-aged eye. In explanation of this the following are some of the possible suggestions. (a) The old eye has a characteristically small and less mobile pupil than the young eye. It therefore does not get as much increase in focusing action through the contraction of the pupil caused by increase of intensity of light, as does the young eye. (b) The retina of the old eye has more lag or inertia in its increase in response to increase of intensity of light than that of the young eye; also its physiological limit of response and the point of diminishing returns are reached at a lower intensity of light. (c) The growing opacity of the media of the old eye causes more and more scatter of light, which interferes with the power to form clear images on the retina. This effect increases with increase of intensity of light. In the early stages in the development of a cataract,

for example, it often becomes so extreme as to render the use of the higher intensities of light intolerable and blinding.

Less Light for Large Pupils

THERE is a decided tendency for those having large pupils to prefer less light, and those having small pupils to prefer more light than the group as a whole, while the preference of those having pupils of medium size is about the same as for the group as a whole. The effect is, however, perhaps less striking than might be expected from the relative amounts of light collected in the image by pupils of different size. The compensating effect of the clearness of imaging given by a small pupil, and the unclearness given by a large pupil must be remembered. An example of this is found in the very small number of those having large pupils, who preferred less than 5 ft-c of light, as compared with those having pupils of medium size.

With respect to the effect of size of pupil on the amount of light preferred for reading, and on the upper and lower limits for comfortable reading, our results show in general that the dominant factor in this effect, on the upper limit, is the amount of light entering the eye; on the lower limit it is the focusing action; and on the preferred amount the two factors are present in more balanced proportion.

Upper Limit for Comfortable Reading

THE results showed that for around 70 percent of the cases the upper limit of intensity for comfortable reading was less than 25 ft-c and for 50 percent less than 17.1 ft-c. As in case of the preferred amount, there was a wide range of individual difference in the upper limit for comfortable reading. A few people had a very low upper limit. For 2 percent it was less than 5 ft-c, for 3 percent less than 7.5 ft-c and for 13 percent less than 10 ft-c. On the other hand, a few had a high upper limit. For 14 percent it was more than 40 ft-c and for 5 percent more than 65 ft-c. Forty-seven percent of the cases had an upper limit between 10 and 20 ft-c.

The concentration of cases between 10 and 20 ft-c was most pronounced for the 20 to 30-year group (66 percent) and least for the 40 to 50-year group (31 percent). In the group of developing presbyopes (35 to 50 years) there was an unusually large number of cases who had very low upper limits of intensity for comfortable reading. The probable reasons for the irritability or intolerance of this group for high intensity of light have already been discussed in the preceding section.

Lower Limit for Comfortable Reading

ANOTHER important point in the treatment of intensity of light is to know the range over which comfortable reading is possible. This involves a determination for each person of the lower as well as the upper limit of the intensity of light, which can be used with comfort by the eye. This determination, as noted above, was included in our series of experiments on intensity of light.

The results showed that 79 percent require more than 5 ft-c for comfortable reading and 50 percent more than 7 ft-c; also that 50 percent of the cases require between 5 and 9 ft-c. The range of individual difference expressed in foot-candles is in this case very much smaller than for either the preferred amount or the upper limit for comfortable reading. However, a few people required very little light, 5 percent less than 2.4 ft-c; on the other hand, a few required a great deal of light, 5 percent more than 15 but no one more than 20 ft-c. By far the greater number of these latter cases were above 35 years of age. The few in the younger age group who required these higher amounts of light showed by test poor vision.

Range of Light for Comfortable Reading

WITH respect to the magnitude of the range of amount of light that can be used with comfort in reading, nothing will be said here for the individual case, other than that the difference between individuals is again very great. However, some idea of the magnitude of the range for the group can be had from the middle values respectively of the lower limit for comfortable reading, the preferred amount, and the upper limit. These values are 7.1, 11.3, and 17.1 ft-c.

One of the most important and practical reasons for studying the range of intensity for comfortable reading, is to determine the percentage of cases in which certain of the more commonly recommended foot-candles fall within this range. Results will be given here only for the total group, for the group 10-20 years of age because it is most nearly representative of the school age group, and for the groups below and above 35 years. These results are shown below in tabular form.

TABLE III.—PERCENTAGE OF CASES IN WHICH COMMONLY RECOMMENDED LIGHT FALLS WITHIN RANGE OF LIGHT REQUIRED FOR COMFORTABLE READING

GROUP	FOOT-CANDLES				
	10	15	20	30	40
Total	20.7	18.9	33.4	32.1	18.7
10-20 years	2.9	9	7.7	4.4	1.9
Below 35 years	10	28	49	34	2.4
Above 35 years	2.4	10	6	41	7.2

For the decade groups it will be sufficient to say in general that 10 ft-c falls within the range for comfortable reading, in the highest percentage of cases for all the groups with the exception of 40-50 years, in which case 15 ft-c falls within this range in the highest percentage of cases.

Intensity of Light and Strength of Reading Glasses

WITHIN narrow but significant limits, intensity of light sustains an inverse relationship to the strength of reading glass required in the correction of presbyopic eyes. There are two ways of aiding the presbyopic eye to see its object at the required near distance, namely, a correcting glass and intensity of light. The former of these is a major and the latter a minor or auxiliary aid. However, the

best selection of either can not be made without reference to the other. The preferred procedure is the selection of the optimum combination of intensity of light and strength of glass.

This selection is easy to make when the examiner is provided with the customary trial lenses and a means of varying the intensity of light such as our Variable Illuminator. That is, the person examined is in no doubt when the most comfortable and satisfactory combination is attained. If for some reason variable intensity of illumination is not available to the person examined, then the selection of strength of glass should be made for the intensity or range of intensities he is compelled to use.

Limiting conditions determining the selection of a combination are on the one hand the discomfort produced by too high an intensity of illumination and on the other the disadvantages of using a stronger correcting glass than is needed. Some of these disadvantages are the greater amount of convergence required with the stronger glass, the less favorable relation between accommodation and convergence, and the undue limitation of the range of distance over which the work can be discriminated. It may be noted here too, that in the early stages of presbyopia, when the refractive condition is changing rapidly, there is an advantage in using all the light than can be tolerated with comfort in that by so doing the correcting glasses will not have to be changed so frequently.

The second part of this paper will appear in the next issue of the PERSONNEL JOURNAL. The list of references will be included in Part II.

Personnel Administration has Become Increasingly Scientific in the Last Ten Years, without Correspondingly Improving Industrial Relations. A Suggested Plan that Might Provide a Closer Correlation between These Two.

Decentralize Personnel Work

By W. V. OWEN

Purdue University
Lafayette, Ind.

PERSONNEL managers of twenty years ago were selected from the shop on a basis of "understanding men." When top management felt the need for establishing contact with employees, industrial relations departments were set up and the task of managing such a department was assigned to a person who became known as the personnel manager. Foremen who had no problems of discipline provided suitable raw material for good personnel men. A promoted ex-foreman did not pass through a course of training; he merely put on his "Sunday Suit" on Monday morning and took his post in an improvised office as personnel manager.

A Man Not an Office

HE WAS a pioneer, which meant that he was forced to develop his own methods. He was on trial; his old colleagues, the foremen, were sometimes unwilling to allow interference their prerogatives of hiring and firing. His job depended on "getting along with people." Soon, everyone in the shop (if the shop was not too big) knew the personnel manager by his first name, and referred to him as "Charlie" or "Bill." Workers with grievances were told to see "Charlie," rather than told to report to the personnel office.

There were few trade agreements to which the personnel manager could refer for guidance in settling disputes. He was forced to use his ingenuity in solving his problems. The fact that he "knew" the men with whom he was dealing was a great boon in the promotion of industrial peace. "Cases" were in the form of human beings, and not records. He was a one-man board of arbitration who could

be trusted with incriminating evidence. His advice was sought concerning all managerial problems which were outside the scope of employment. In short, he was *omnipotent*.

Loses Direct Contact

THE first World War, and the subsequent brief period of prosperity provided ideal soil for the growth of this new organism; so, as business institutions expanded, the duties of the personnel manager became more complex. It was no longer possible to "know" the men and the foremen. The knowledge, which had been the personal property of the personnel manager, was now obtained by his interviewers, who made a record of each "case", which was placed on file.

The manager of men was becoming a manager of records. Reports of labor turnover had to be drawn up, as well as reports of the meetings of the shop council. Welfare programs were organized and administered; the company paper had to be edited. Thus, the old personnel man gradually became an executive who worked with curves, charts, figures and words, rather than with human emotions.

This process of management based on system and science had only begun in the middle twenties. Scientists had been working behind academic walls constructing whole batteries of scientific tools which are now in the hands of personnel managers. Tests of skills, intelligence and attitudes, as well as rating scales were being produced by industrial psychologists. Furthermore, the employment of thousands of persons under one management provided a fertile field for the statistician. Books on personnel management now contain a chapter on statistical methods, and these statistical methods have become a definite part of the equipment of the personnel expert of today.

Now Deals with Legislation and Unions

THE Social Security Act, the National Labor Relations Act and the Fair Labor Standards Act have added more duties to the personnel specialist. He functions, both as an agent of the government in making out the required reports, and also as an agent of top management in interpreting government legislation, as it applies to a particular firm. Owners of firms may look to personnel officers for advice as to coverage, and here any wrong advice as to coverage may prove very costly. Violations of the N.L.R.B. which may invite annoying investigations have created a quasi legal responsibility which must be discharged by the busy personnel executive.

So it would seem that the old "dressed up" foreman who "understood men" is supplanted by a person who has been trained in economics, political science, psychology, statistics and law. He has become an executive in charge of a variety of "relationships", with his firm on one end, while on the other are to be found labor organizations and unorganized), State administrators armed with State laws, and Federal administrators with their Federal laws.

Almost without warning the field of labor management finds itself engaged in research, collective bargaining, the selling of the State's social reform to employers and the firm's policies to the State in addition to all the ordinary duties of hiring, promotion, safety, etc. That one person can be proficient in discharging all the functions of a present day personnel office is improbable.

Now a Coordinator

BECAUSE of the complexities of modern labor relations, a personnel man with the necessary capacity becomes of necessity a coordinator. By division of labor he delegates authority to his subordinates. Thus, he becomes further removed from the workers and may very probably take on the coloring of management rather than of men. Another possibility is that labor management may become involved in research.

Research in industrial relations may have one of many motives, such as discovering means of reducing labor costs, the truth for the sake of truth, or the promotion of the welfare of the workers. Research may result in the conclusion that management is paying a wage less than the value of labor's product. Will the scholar in industrial relations, who discovers exploitation on the part of his employer, be able to convince his employer that wages should be raised? Is industry interested in discovering its social responsibilities, and is industry willing to pay a scholar for showing industry how to discharge its social responsibilities?

Personnel officers may be forced to think of their own security as well as that of employees. The gravest possibility is that personnel management may degenerate into mere office routine of reporting and record keeping. Record keeping may offer the utmost in job security to the personnel worker, but the least in the development of labor management.

Despite the fact that the old industrial relations specialist was unscientific, he did perform a very necessary function. He provided "ears" which would listen and *not record* the woes of workers. It is doubtful that trade unions furnish the "ears" which modern personnel management has lost.

How to Restore Personal Touch

THE listening function could, however, be restored by reorganizing the personnel department. Such reorganization would consist of setting up several "branch personnel offices" within a plant. Each sub-division would serve no more than a few hundred employees. In this way the old "personal touch" could be restored. Centralized record keeping need not be disturbed.

It would not only be possible to restore the lost personal element, but considerable simplification of the tasks of each "branch office" could be realized by assigning each branch to a group of shops. One office would have jurisdiction over foundry workers, another, over the machine shop, etc. Quite obviously, there wouldn't

be the same number of workers in each division, and adjustments would have to be made.

The distribution of functions as between the central office and the "branch offices" would be determined by experience. Perhaps record keeping should be confined to the central office, while skeleton cards containing but little detailed information would be filed in the branches. It might be desirable to have the central office select workers, which would obviate the objection of having applicants walk through the plant to the regional offices. In general, the chief functions of the outlying offices would be: to carry out the policies formulated in the central office, to provide "ears" for complaints, and to advise the central office.

Cannot Do It with Foremen

It has been suggested that the personal touch lost by the complexities of system and science and the increase in the number of employees can be restored by the foremen. This doesn't seem feasible for at least two reasons. In the first place, it would be unwise to add to the burden of foremen, whose tasks are already very difficult. In the second place, a foreman is the immediate "boss" and it is very doubtful that a worker would feel free to confide in his "Boss."

Furthermore, the task of informing workmen as to their rights under the Social Security Act, the Labor Relations Act and the Fair Labor Standards Act requires the services of a specialist. It would be unreasonable to expect a foreman to have the knowledge necessary to inform a worker concerning his unemployment insurance benefits, old age benefits, etc.

If it is possible, and apparently it is, for a large business corporation with widely separated production units, to have a central personnel office which functions through the plant offices, why isn't it reasonable to apply the same plan to a large producing unit, which has outgrown its centralized industrial relations office?

There is No Doubt that Distribution, or at Least Retailing, Had a Bad Start in the Attitude of the Public toward It, and All Retailing Still Suffers. But It is Now Becoming Respected. Not only in Fact, but Also by Reputation.

Chain Stores Improve Policies

BY JOSEPH H. BERGER

Madison, Conn.

ISUPPOSE we can admit that the general public regards with little favor the conditions of employment in a chain store. The girl in the '5 and 10' is the butt of much amusement and the subject of not a little pity. If this general impression is based on fact, the chain store system can survive only if its employment policies are brought into line with current demands, a process which can more happily be brought about by voluntary action on the part of management than by ultimate compulsion through public opinion or legislation.

If, on the other hand, the impression is an unjust one and is contradicted by the facts, one is forced to the conclusion that there is an active need for a dynamic public relations policy designed to inform the public of the actual conditions.

In England much the same situation existed a few years ago, but chain store management grappled with the problem, and to-day employment in a chain store is at least regarded as a dignified and worthwhile position to hold.

Better Conditions Bring Better Workers

THE unsatisfied and generally incompetent salesgirl, whose employment was essentially transient, has given way to a person of intelligence and training whose conditions of employment and future prospects are fully as high as those of any other distributive worker; so far is this true that in many towns the chain stores attract to their employment the very best of the youngsters who leave school each year.

The directors of the large chain groups are fully alive to the necessity of telling the public what improvements in working conditions they have effected, and one

has only to read the annual speeches of the chairmen, as given to their stockholders and fully reported in the press, to realise how thoroughly the public is kept informed of their personnel policies. In addition, local public relations bulletins are published from time to time in the various towns where chain stores have their branches, and educational and civic authorities are ceaselessly kept aware of the continually advancing personnel policies.

Recent Improvements

Working hours of working are improved every year in the majority of cases completed course of four or a four week is made to apply, not only to the counter assistants but right through all ranks of the staff to the managers and assistant managers. Vacations with full pay are given to all employees, generally on the basis of two weeks to sales assistants, two-and-a-half weeks to floorwalkers and clerical staff, and three to four weeks to managers; in addition, long week-ends are allowed in vacations with pay during the slack periods after the busy and harassing Xmas and summer seasons. Full or partial pay during absence caused through sickness is given as a matter of right, and not as a privilege; despite this, the incidence of such absences remains as low, and in some cases, lower, than in organizations where sickness pay is only allowed in special cases of old and privileged employees.

In the majority of chains, employees are allowed to make their personal purchases from the store at a discount below the standard prices, this has been found to be a very welcome institution, particularly in those cases where the discount is actually paid to the employee in cash at the end of each month. The record-keeping involved is not little greater than what is required for any staff purchase system.

Dismissal Policies Improved

Most chains have found that it is the interest of their businesses to keep their labor turnover down to a minimum, for clearly the established and trained assistant is of more value than the transient. In order to assist in this, dismissal policies have been so organized that local managers have no power to dismiss employees, except for dishonesty or flagrant insubordination, until the proposed dismissal has been adequately considered both by the district manager and by the area personnel office. Where dismissal becomes necessary through no fault of the employee concerned, it is customary for dismissal compensation to be paid, generally at the rate of one week's wages for each completed year of service.

The physical surroundings of chain store workers have been improved out of all recognition during the last ten years; modern cloakrooms and toilets have been provided, and most stores which employ more than 30 persons have installed comfortable lounges and rest-rooms. These rooms are also used as training schools for salesmanship and display during the hours when they are not required for other use by the staff.

Many firms have elaborated useful schemes for assisting their employes to obtain preventive and curative treatment for sickness, these schemes being worked in conjunction with the local hospitals, doctors and dentists so as to secure the necessary services at a cost within the means of the employes.

Transfers and Promotions

SPECIAL consideration is given to those members of the staff who desire to be transferred to stores nearer to their homes than the one at which they are working, and training courses are constantly held, not only for the purpose of helping the employes to improve their standards of efficiency in their existing positions, but also to help them qualify for the senior positions which become vacant from time to time.

Apart altogether from labor union representation, (which is still in the early stages of its development), most chains arrange for a person to be chosen by the staff in each store so as to represent them in discussing personnel policy with the management, and this person necessarily acts as a two-way channel for personal communications between the management and the rank-and-file.

Local and general conferences of these staff representatives meet periodically, and their discussions have helped materially in straightening out human problems which would otherwise be too remote from the home office to be fully appreciated.

Travelling Staffs

SOME chains have developed a series of mobile or travelling staffs, composed of the most efficient salesgirls and other grades, and these mobile staffs are sent from store to store within a given area, both as a routine matter of improving service at the stores to which they are sent for temporary service, and as a special re-inforcement during rush or special reasons. Positions on the mobile staffs are eagerly sought after, for they involve higher pay and privileges as well as the opportunity for getting away from everyday surroundings.

Pensions schemes are becoming more and more of an established practice for male employes, the schemes being operated on a contributory basis. The employe, whether manager, assistant manager or stockman, contributes around 4% of his pay, and the employer makes up the difference, (approximately 6% of the payroll of those participating), so as to secure a pension on retirement at age 60 of a monthly check approximating 40% of the average wages earned during the period of employment.

Pensions schemes generally include the right to a lump sum in the event of the employe's death before retirement age, and the return of all his contributions if he should leave his job before retirement. Very few firms have found it possible to operate a pensions scheme for their female employes, because so few of them can ordinarily be expected to continue working until retirement age, but in many cases

special funds for women employees are set up, with the object of providing pensions or substantial lump sums for those who remain with the firm for many years.

Voluntary Action by Managements

THE introduction of these and other advances in working conditions for chain store employees has necessarily led to the recruitment of a higher calibre of worker than was formerly the case, and management reaps its benefits, not only in improved sales arising from the greater knowledgeability of the employees, but also in reduced shortages and other controllable expenses. In addition, the standard of conduct in the stores has improved very considerably, and an atmosphere of harmony and goodfellowship has succeeded the former harshness and discordance.

Not the least interesting fact is that all these developments have come about from the voluntary action of chain store managements up and down the country, for it is they who have been far-sighted enough to understand that the merits of the chain store system depend not only upon the value of the merchandise which they sell, but also upon the living standards of the hundreds of thousands of workers whom they employ.

Industrial Health Agency Directory

By W. J. McCONNELL, M.D.

Industrial Health Agencies, and their reports and studies, were described in the March, 1940, Personnel Journal.

To aid companies who might wish to seek advice or assistance from these agencies on special problems, or to keep in continuing touch with their work, Dr McConnell has kindly provided the following directory:

Mr. H. B. Meller, Managing Director
Air Hygiene Foundation of America, Inc.

4400 Fifth Avenue

Pittsburgh, Pennsylvania

Dr. McIver Woody, Medical Director

Standard Oil Company of New Jersey

30 Rockefeller Plaza

New York, N. Y.

(President, American Association of Industrial Physicians and Surgeons)

American College of Surgeons

40 East Erie Street

Chicago, Illinois

Dr. C. M. Peterson, Secretary

Council on Industrial Health

The American Medical Association

535 North Dearborn Street

Chicago, Illinois

Dr. Harold S. Diehl, Chairman

Section on Preventive and Industrial Medicine and Public Health

The American Medical Association

535 North Dearborn Street

Chicago, Illinois

Mr. J. J. Bloomfield, Sanitary Engineer

Industrial Hygiene Division

National Institute of Health

U. S. Public Health Service

Bethesda, Maryland

(Secretary, Industrial Hygiene Section, American Public Health Association)

Dr. R. J. Atwater, Executive Secretary

American Public Health Association

50 West 50th Street

New York, N. Y.

Mr. A. V. Hutchinson, Secretary

American Society of Heating and Ventilating Engineers

50 Madison Avenue

New York, N. Y.

Mr. F. C. Houghten, Director

Research Laboratory

American Society of Heating and Ventilating Engineers

480 Fourth Street

Pittsburgh, Pennsylvania

Mr. E. A. Downing, Chairman

Joint Committee of the American Society of Heating and Ventilating Engineers and
American Society of Refrigerating Engineers on Minimum Requirements for Comfort
Air Conditioning

American Society of Refrigerating Engineers

New York, N. Y.

Mr. Donald E. Locke, Executive Secretary

American Society of Refrigerating Engineers

17 West 34th Street

New York, N. Y.

Mr. Cyril Ainsworth, Secretary

Sectional Committee on Allowable Concentrations of Toxic Dusts and Gases

American Standards Association

20 West 30th Street

New York, N. Y.

Associate Secretary, American Standards Association

Mr. H. B. Dares, Chairman

Technical Committee on Lighting of Factories, Offices, Schools and Other Work Places

Illuminating Engineering Society

3071 Euclid Heights Boulevard

Cleveland, Ohio

Mr. W. H. Cameron, Managing Director

National Safety Council

20 North Wacker Drive

Chicago, Illinois

Dr. Charles J. Hatfield, Secretary

National Tuberculosis Association

50 West 50th Street

New York, N. Y.

Dr. Leroy U. Gardner, Director

Saranac Laboratory for the Study of Tuberculosis

7 Church Street

Saranac Lake, New York

Dr. Carey P. McCord, Director

Industrial Health Conservancy Laboratories

10 Peterboro Street

Detroit, Michigan

Mr. E. O. Jones, Director

Safety and Hygiene Section

American Foundrymen's Association

222 West Adams Street

Chicago, Illinois

Industrial Hygiene Codes Committee

Dr. Donald M. Shafer, Associate Consultant

Committee on Healthful Working Conditions

National Association of Manufacturers

14 West 49th Street

New York, N. Y.

Mr. A. R. Curtis, Secretary

Committee on Accident Prevention and Insurance

INDUSTRIAL HEALTH AGENCY DIRECTORY

Portland Cement Association
33 West Grand Avenue
Chicago, Illinois
Dr. John Foulger, Director
Haskell Laboratory of Industrial Toxicology
Wilmington, Delaware
Dr. A. G. Cranch, Director
Industrial Toxicology Department
Union Carbon & Carbide Company
30 East 42nd Street
New York, N. Y.
Dr. Leverett D. Bristol, Health Director
American Telephone & Telegraph Company
195 Broadway
New York, N. Y.
Dr. George M. Price, Director
Union Health Centre
275 Seventh Avenue
New York, N. Y.

Employee Publication Editors Meet

By ROBERT L. STONE

THE American Association of Industrial Editors, a National Association for Employee Publication Editors, recently held its first annual convention in Cincinnati, Ohio.

The growing importance of employee publications in the sphere of employer-employee and public relations was stressed by Bennett Chapple, assistant to the president, American Rolling Mill Company, in his address before 70 employee publication editors at their banquet.

"Editors of employee publications," said Mr. Chapple, "have a big job on their hands if they live up to their opportunities. These publications are the natural voice of business and should be the first to reveal mutual interest in all those things that go to make up successful industries. Business problems must be better understood, not only by the general public, but by the wage earner to whose life work they are a vital concern.

"There is an average of \$7,600. in invested capital behind every job in the country," Mr. Chapple continued. "In the iron and steel industry the figure is \$11,500.

"America needs an awakening to these things and the editors of employee publications should start the awakening. They are the family men of industry."

Technical Sessions on Layout, etc.

THE Monday afternoon session included talks by Fred Toy, Cincinnati Gas & Electric Company, who pointed out the relative value of certain types of pictures and the paramount necessity of pictures in making an employee publication effective. William Dowdell, city editor of the Cincinnati Post, demonstrated some of the methods of gathering news. Mr. C. John Morean of the Crowell-Collier Publishing Company spoke on effective layout and typography. Rudolph J. Bartz of the Caterpillar Tractor Company illustrated his talk, on making the employee publication interesting to the reader, with selected examples of both good and bad layout, typography and editorial policy.

The Tuesday morning session included talks on "What the Employee Publication Should Contain" by Marvin Alexander of Scott Paper Company; "Editorial Content and Management Articles" by Howard Marple of Monsanto Chemical Company; "Contributions of Employee Publications to Education for Morale Building" by Professor Ralph C. Davis of Ohio State University; "Management's View of Employee Publications" by Dr. F. G. Barr, Supervisor of Industrial Relations. The National Cash Register Company.

"The housewife can be a strong factor in creating amicable relations between employers and employees," said Mrs. Betty Barton, Radio Director for the National Legion of Mothers of America, who addressed the Tuesday luncheon session on "The Woman's Angle in Employee Publications." "Women in the home do more than is generally realized to influence the attitude of their husbands and sons towards their jobs." In concluding, Mrs. Barton strongly advised that material used in company and employee magazines be directed towards housewives also.

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OFFICERS for the coming year include:

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 W. H. Senyard, Louisiana Light & Power Company
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 F. L. Cheever, Pepperell Manufacturing Company
 Marvin Alexander, Scott Paper Company
 Bert Barnes, United Parcel Service
 John B. Meagher, Weirton Steel Company
 Fred Toy, Cincinnati Gas & Electric Company

Robert F. Stone was re-appointed to serve as Executive Secretary for the coming year. Mr. Stone would be glad to have all those actively concerned in such editorial work get in touch with him, to learn the activities of the Association, receive notices of its conventions and about membership in it.

His address at the headquarters of the Association is, 3732 Euclid Avenue, Cleveland, O.

Book Reviews

Book Review Editor, MR. EVERETT VAN FLEURY

University of California, Berkeley, Calif.

WAGE SETTING BASED ON JOB ANALYSIS AND EVALUATION

By C. Canby Balderston. New York: Industrial Relations Counselors, Inc., 1940,

70 pp. \$1.00.

In this monograph the author deals with what is perhaps one of the most pressing and basic problems in many American companies—the need for more logical wage structures. Governmental measures for the regulation of wages, the extension of wage negotiations through collective bargaining and growing dissatisfaction of employees over wage discrimination are now prompting employers to improve wage and salary administration. Job analysis, a systematic means of evaluating jobs and determining rates, is being resorted to as a substitute for the former hit-and-miss methods.

Professor Balderston here reviews the different techniques of job analysis and appraises them in terms of good industrial relations policy. After dealing with definitions and descriptions of procedures, he discusses the problems involved in planning a job analysis project, the actual steps necessary to an analysis of both hourly-rated and salaried work and the application of the rate schedule growing out of an analysis project. Finally, he considers certain limitations on the use of job analysis at the present stage of its development.

Business executives and students of labor problems, who believe with Professor Balderston that systematic wage setting is the starting point of good industrial relations policy, will find this monograph a valuable contribution to constructive planning and action.

THE STRATEGY OF JOB-FINDING

By George E. Lyons and Harmon C. Martin. New York: Prentice-Hall, Inc.,

1939, 408 pp.: \$3.50

Reviewed by Book Review Editor

Among the "must" books in a personnel manager's library should be one on current-day techniques in job-finding. With so much emphasis today on unemployment, and the many plans for reducing it, the employment offices are experiencing a barrage of applicants in the many stages of preparation and qualifications for a job.

"The Strategy of Job-Finding" is a business book for the job-seeker. More specifically it is recommended to the recent graduate who wants to seek out his job career, and conduct a systematic plan of campaign among employers. In this era

of job displacement and occasional dismissals, such a book might well serve the personnel manager or supervisor to relieve the sting of the lay off.

The authors treat the selection of a vocation; interviewing techniques, employment practices and the elements of a job-finding campaign. Counselors and placement officers in schools and universities should find this volume a ready desk source of ideas and suggestions; adult groups, evening courses, community job clinics, re-employment projects and vocational classes could readily use this book as a foundation text; and the industrial personnel and employment manager will want to know what these groups are doing about winning his favor and how best to cooperate with the deserving applicant who is making an intelligent approach to his job-seeking problem.

SECRETARIAL EFFICIENCY

Frances Avery Faunce and Frederick G. Nichols. New York: Whittlesey House, McGraw-Hill Book Company, 1939, 601 pp.: \$3.50

Reviewed by Grace Rieneman

"*Secretarial Efficiency*", says the author, "is written for secretaries by a secretary with the desire to show how each duty may be carried through by itself with efficiency and poise, and to give assurance in the ways of handling many duties at once with equal efficiency and poise."

The author presents a wealth of practical material, emphasizing the fundamental principles and reasons underlying the use of this factual knowledge. It is her purpose to provide a textbook for students as well as a handbook for experienced secretaries. Her first purpose is well attained, but the experienced secretary may find this wealth of factual material a maze of elementary details.

This book could be heartily recommended to the struggling stenographer who has not had the advantage of a complete secretarial training, or to the secretarial school graduate just starting her career. The chapter on the proper procedure for obtaining a position is one of the most valuable in the book, and could perhaps have been even more detailed for the benefit of the beginner.

Personnel directors, office managers and supervisors will find this volume a good source book for staff reading, and for standardizing office and secretarial practice.

PERSONNEL ADMINISTRATION IN THREE NON-TEACHING SERVICES
OF THE PUBLIC SCHOOLS

Hazel Davis. *Contributions to Education*, No. 84. Bureau of Publications,
Teachers College, Columbia University, New York, 1939.

Pp. XII + 323. \$2.50.

Reviewed by T. L. McCuen, Business Manager, Kern County Union High School
District, Bakersfield

The subject of personnel administration should be of interest to school administrators, particularly the forgotten phases of personnel administration in non-teaching services.

The general program chosen for study in this work was to determine whether or not approved personnel procedures in administration tend to be associated with evidences of adequate performances in the non-teaching services of attendance, school nursing, and secretarial work. The author in conducting this investigation under the supervision of George D. Strayer visited twelve cities with a range in population of from thirty thousand to one hundred and fifty thousand in the vicinity of New York City.

Data for the survey were gathered by personal observation of practices, check lists and interviews. The observations showed that the systems which were above the average in carrying out the proposed principles of personnel administration tended also to be above the average in performance of certain aspects of three non-teaching services of the schools. In no one of the cities studied was there evidence of a comprehensive program of personnel administration.

The study reveals that little direct attention was being given to the administration of the non-teaching personnel and lists the following three causes which appear to contribute to this neglect: (1) the inadequate staff assistance available to superintendents; (2) the failure of superintendents to conceive of a broad program of personnel administration as one of their professional responsibilities; and (3) the absence of research on certain crucial phases of personnel administration.

The author points out that progress is being made in certain specific areas of service but not with the school staff as a whole. Twenty-one guiding principles or measures of personnel administration are proposed and might well serve as a guide to any school administrator in improving his own personnel administration.

The descriptions of best practice observed in connection with the various principles, reveal that even at best the personnel procedures are limited in scope. One might feel that the school units included in the study are too limited in number and too localized to warrant general conclusions on personnel practices in all areas. The general principles developed, however, are sound. An extensive bibliography on personnel administration is included at the close of the study.

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Unionism Has Caused Improved Selection, Less Labor Turnover and More Safety in Highly Unionized Plants, According to Surveys of 84 Companies Made by the 1940 Class in Personnel Management of the University Of Toledo

Effects of Unionism I Nationwide

Supervised by DONALD S. PARKS

University of Toledo, Toledo, Ohio

WITH the exception of certain activities in highly unionized plants, the advent of unionism has had little adverse effect on the general personnel program, and it need not have any considerable effect so long as labor and management co-operate wholeheartedly in the solution of their mutual problems.

This statement expresses the general conclusion reached by the 1940 Class in Personnel Management of the University of Toledo as the result of a nationwide survey to determine the effects of unionism of personnel activities.

Over Half Million Workers

TWO hundred questionnaires were sent to nationally known concerns. Companies of different sizes in various industries throughout the country were chosen. Fifty-six replies were received. Five contained no information, since the companies were non-unionized, and two were not used due to insufficient data. The remaining forty-nine replies representing approximately 550,000 workers, have been incorporated into the results shown herein. The geographical distribution, which shows that approximately 60 per cent of the replies came from concerns in the Middle West, is given in Table I.

When analyzing the results of this survey, certain cautions must be observed. First, only a small sample of American industry is represented. Secondly, of the 46 concerns answering the question "what per cent of your workers are unionized," 22 of the replies came from concerns that were 75-100 per cent unionized, so that the results reflect conditions in companies which are most affected by the influence

Effects of Unionism on Personnel Management

Tabulated Results of Nationwide Survey

Approximate number of employees: 550,000.

Do you have a full-time personnel manager? Yes—39. No—9.

What per cent of your workers are unionized? 0-25%—8. 25-50%—3. 50-75%—5. 75-100%—22. Don't know—8.

What type of union contract do you have? None—12. C.I.O.—20. A.F. of L.—16. Independent—10.

As applied to your personnel activities, how has unionism affected the following:

	INCREASED	DECREASED	UNCHANGED
Devices used for selection...	8	4	25
Absenteeism and tardiness	3	2	35
Labor turnover.....	2	9	29
Length of training period...	3	1	34
Safety programs.....	7	1	32
Medical services.....	2	2	36
Recreational activities	2	—	31
Employee benefits (savings, insurance, or pensions).....	3	3	32

Has unionism caused any change in the general procedure of hiring? Yes—16. No—29.

Do you maintain an employment office? Yes—42. No—6.

Do you hire through the union? Yes—5. No—41.

If not, must employees join a union after hiring? Yes—6. No—37.

Does hiring a union man make your training methods more extensive?—1. or less extensive?—2. No change—36.

Must the union be consulted in cases of dismissal? Yes—11. No—28.

Have the opportunities for promotion been altered by the union contract? Yes—17. No—24. Is promotion strictly along the lines of seniority? Yes—6. No—36.

Must grievances beyond the jurisdiction of the foreman be settled through the union? Yes—22. No—17. Has this always been so? Yes—17. No—13.

of unionism on the personnel program. Therefore, the conclusions reached cannot always be considered generally true for all companies or all sections of the country, but the analysis of conditions in these forty-nine companies does reveal some significant trends which should be valuable in interpreting any particular situation.

The nine firms indicating that they did not have a full time personnel manager were relatively small concerns, representing only about 20,000 workers.

An analysis of the types of union contracts showed no distinct preference for any particular form of contract. The relationship between the type of contract and the per cent of unionization *when both questions were answered*, is shown in Table II.

TABLE I

California	1	Minnesota	7
Connecticut	2	New Jersey	4
Illinois	26	New York	5
Indiana	2	Ohio	10
Kentucky	1	Oklahoma	1
Maryland	1	Pennsylvania	2
Massachusetts	2	Texas	1
Michigan	5	Wisconsin	5

TABLE II

Type of Contract	PERCENT OF UNIONIZATION		
	0-25	25-50	50-100
C.I.O.		1	10
A.F. of L.	1	1	8
Independent		1	5
None	5	1	2

Of 37 replying, eight companies indicated that the selection of employees is given more care since the introduction of unionism. Regardless of motive, this is a good thing, for the very basis of personnel technique is to get the right man in the right job. Three of the four indicating a decrease in selection devices actually hire through the union.

All of the five companies showing change in absenteeism and tardiness—three increasing, two decreasing—were 75-100 per cent unionized.

Labor Turnover Decreased

WHEN a company is highly unionized, labor turnover decreases. Of the nine concerns showing decreases in labor turnover, all were over 50 per cent unionized—seven, over 75 per cent. An explanation for this is the increased emphasis upon seniority brought in by unions.

Of the three companies reporting an increase in length of training period, one indicated more extensive training methods, two, no change.

As in the case of labor turnover, unionism has exerted a beneficial effect on the safety programs of highly unionized plants. All seven showing increased safety

programs were over 75 per cent unionized. Ordinarily, safety devices are one of the first subjects of union-management cooperation.

Of the last three items in this group, only recreational activities showed any significant change. Seven reported decreases, while only two indicated an increase. One representative concern explained the decrease by saying that they let the union take over supervision of these activities.

It is important to note that the companies in which these three activities—recreation, safety and labor turnover—were most influenced are highly unionized plants. Of the 40 companies answering this section, 42½ per cent showed no change whatever in any part of the personnel program. The other 57½ per cent showed change in only a few individual activities but on the whole likewise remained unchanged.

These results show that up to the present time, the spread of unionism has not appreciably altered the personnel program of the major part of industry. In highly unionized plants, however, unions will exert constantly increasing influence on personnel activities, but on the other hand, primary responsibility for carrying out the personnel program will still rest with management.

Hiring Methods Affected

HIRING procedure has also been most influenced in highly unionized plants, ten of the 16 firms answering the question affirmatively were 75-100 per cent unionized.

Only five of 46 concerns hire through the union, and 42 of 48 still maintain their own employment office. In only six plants must employers join the union after hiring. Thus selection of the working force remains primarily a management function.

The problem of training the worker for his job is evidently little different whether the man is a union member or not. The two replies indicating less extensive training methods were from plants 75-100 per cent unionized which hire through the union, showing that in a few instances, hiring experienced union men has decreased company training.

Eleven of the firms replied that the union must be consulted in case of dismissal. Ten are 75-100 per cent unionized, the other, 50-75 per cent, again showing that only where the union is strong are activities greatly influenced.

Joint Representation Increasing

SEVENTEEN OUT of 41 concerns reported that promotional opportunities have been altered by unionism. Only six of these, however, base promotion on seniority alone. Merit and seniority now are both considered by most companies, but in the future, unionism⁷ will cause greater emphasis to be placed on seniority.

The 111 concerns where grievances beyond the jurisdiction of the foreman must be settled through the union are unionized as follows:

Yes	14
Partly Yes	3
Partly No	3
Unknown	4

The greatest effect is again noticeable in the highly unionized plants. The influence of unionism on the problem of settling grievances is greater than that indicated for any other question. From this it can be concluded that joint representation is a matter of particular concern to unions, and if the present trend continues, the growing strength of the unions in this regard will increase employee influence over joint representation committees and over activities within the province of these committees.

Perhaps the most interesting parts of the survey are the questions requiring a prediction of the future. These answers show thoughtful consideration and genuine concern about the problem. Some of the representative statements are reproduced in full below.

Long Run Effects

QUESTION 1: *What do you believe to be the long run effect of the widening scope of unionism on personnel management?*

"A management which desires conscientiously to do a good job of employer-employee relationships will be affected very little by the widening scope of unionism."

"Should not have any. Doubtless there would have been many instances in which unionism or the threat of it have resulted in the adoption of practices which improved the circumstances of the employee. However, in the better-managed organizations such practices were adopted without any union pressure."

"If we can secure the cooperation of the union in matters affecting production and sales, we will mutually gain the benefits derived from management and labor working together."

"Will require increased emphasis and detailed employee records, improved employee selection and grading methods, and broadened training for supervisory personnel."

Responsibility of Labor

QUESTION 2: *What must labor do to solve future problems?*

"Acquire through process of education a greater awareness of the economic problems facing the management of business, industry and evidence of their willingness to recognize the economic consequences of their own actions."

"Use intelligence in demands, making honest and complete investigations of grievances before presentation to the management."

"Must realize that they are responsible for helping enterprise instead of being at odds. Must help business by taking part in reducing costs."

"Consider itself engaged in cooperative enterprise with the management of business and so conduct its affairs."

"Increase its responsibility in its recognition of the solemnity of labor agreements. Educate its leaders to see both sides of the problem."

"Realize that any steps they may take against industry will likewise affect them. We also feel that labor should have more confidence in its appointed leaders when negotiations are carried on between both sides and when a mutual agreement is reached."

Management's Job

QUESTION III. *What must management do to solve future problems?*

"Management must recognize the social responsibilities of business enterprise to put into practice a policy of consultative supervision."

"Recognize ability and performance and share profits with all deserving employees. In addition pay more attention to conditions which bring about happier lives for all employees."

"I think that management must be frank with itself and with its employees and customers. Constant effort must be expanded to acquaint these two groups with the facts and accomplishments of the enterprise system."

"Be fair and honest and use more care in explaining inability to meet demands of the above type when it cannot do so wholly or in part."

Effects of Unionism II. In Toledo

THE general conclusion reached from the Toledo survey is identical with that arrived at in the nationwide survey—that with the exception of certain activities in highly unionized plants, the advent of unionism has had little adverse effect on the general personnel program, and it need not have any considerable effect so long as labor and management cooperate wholeheartedly in the solution of their mutual problems.

Questionnaires were sent to sixty-five concerns located in Toledo. Thirty-five replies were received representing about 14,000 employees. The sample used in analyzing the Toledo situation is much more representative than that used in the nationwide analysis. Over 20 percent of the Toledo workers are represented in the local survey, thus providing an adequate cross-section of industrial Toledo. This relatively larger sample lends greater validity to the conclusions reached in the Toledo analysis.

Number of Personnel Managers

ONLY one-half the companies answering the questionnaire have a full-time personnel manager. However, these companies employ an average working force of 647, compared to an average of 166 for those companies who do not employ a full-time manager. Need, conditioned by size, and not the presence or absence of unionism seems to be the determining factor for the size of the personnel department. Although the nationwide survey shows that 80 percent of the companies replying have a full-time manager, the wide discrepancy between the two surveys is probably due to the difference in sampling.

On the basis of the sample used, it is quite evident that Toledo is highly unionized. Over 80 percent of the concerns replying indicated that more than 50 percent of their workers are unionized. It is also interesting to note that union membership is fairly evenly divided between the two rival labor organizations, C. I. O. and A. F. of L. In this latter respect, Toledo differs very little from the nation as a whole. Closer analyses of the types of contracts and the amount of unionization are shown in tables I and II.

The unionism seems to have exerted considerable influence on certain personnel activities in a few concerns. In general, this influence has been beneficial: devices used for selection, the length of training periods, and safety programs have all increased, while labor turnover shows a decrease in many cases. If the spread of unionism results in placing more emphasis upon selecting the right man for the right job, upon training him for that job, and upon making that job more secure, its

Effects of Unionism on Personnel Management

Tabulated Results of Survey in Toledo

Approximate number of employees—13,833.

Do you have a full-time personnel manager? Yes—17. No—18.

What per cent of your workers are unionized?—23%—4,111; 10%—716;
6%—1007; 23. Unknown—2.

What type of union contract do you have? None—4. C.I.O.—11. A.I. of L.—
—18. Independent—1.

As applied to your personnel activities, how has unionism affected the following:

	Increased	Unchanged	Decreased
Devices used for selection	6	—	25
Absenteeism and tardiness	2	—	20
Labor turnover	3	12	17
Length of training period	6	1	23
Safety programs	6	1	25
Medical services	4	2	19
Recreational activities	4	—	20
Employee benefits (savings, insurance, or pensions)	4	2	24

11 companies reported all activities unchanged.

Has unionism caused any change in the general procedure of hiring? Yes—16.
No—16.

Do you maintain an employment office? Yes—22. No—13.

Do you hire through the union? Yes—3. No—32.

If not, must employees join a union after hiring? Yes—9. No—22.

Does hiring a union man make your training methods more extensive?—0. Or less
extensive?—1. No change?—31.

Must the union be consulted in cases of dismissal? Yes—13. No—20.

Have the opportunities for promotion been altered by the union contract? Yes—15.
No—18. Is promotion strictly along the lines of seniority? Yes—10. No
—23.

Must grievances beyond the jurisdiction of the foreman be settled through the
union? Yes—22. No—9. Has this always been so? Yes—18. No—13.

long-run effects, at least in these fields, will be toward the improvement of personnel practices.

It should be noted, however, that, as in the national survey, all appreciable change of time occurred in highly unionized plants, but the number showing change is relatively small when compared to those companies showing no change. In these results, quantitative changes have been shown in certain instances, but the qualitative change cannot be measured.

TABLE I

Personnel Function	Toledo plants only			
	change	no change	no answer	total
A. F. of L.	—	—	4	4
C. I. O.	—	—	—	—
Independent	—	—	1	1
None	8	—	—	8

TABLE II

Personnel Function	Nation as a whole			
	change	no change	no answer	total
A. F. of L.	2	11	—	13
C. I. O.	—	8	—	8
Independent	—	—	—	—
None	6	3	—	9

The remaining four personnel activities have been little affected by unionism. As in the national survey, 42.8 percent of the companies replying indicated no change in all personnel activities.

C.I.O. Causes Most Change

ONE interesting relation brought out by classifying the concerns indicating a change in their personnel activities according to the type of union contract is that although the total number of A. F. of L. contracts exceeded those of the C. I. O., more C. I. O. plants reported changes than did the A. F. of L. plants. This is true of all activities. No definite explanation of this is apparent. It may be coincidental, due to the sample used; it may be due to varying conditions in the individual plants; it may be due to different programs conducted by the C. I. O. and the A. F. of L.; or any of a number of other reasons may have brought about this result.

A comparison of the two surveys shows that hiring procedure has been influenced more in Toledo firms than in the nation as a whole. Fifty percent of the Toledo firms, compared with 35 percent in the nation, reported a change. This may be due to a difference in sampling. The highly unionized plants in Toledo were evenly divided on the question. However, the lack of any definite trend in the replies to this question of whether unionism has affected hiring procedure indicates that the effects are unpredictable.

Only three of 35 concerns reported that they hire through the union, indicating that hiring is still primarily a management function in Toledo as well as in the nation. The greater number of small firms included in the Toledo sample accounts for the increased proportion of firms not having an employment office. It can safely be predicted that unionism will lessen very little the need for scientific personnel methods for selection and placement.

Joining the union after hiring is more prevalent in Toledo due to the greater degree of unionization.

The replies clearly indicate that unionism has caused no change in training methods.

Whether the union must be consulted in cases of dismissal seems to depend upon the union being strong in a plant, as 12 of the 13 answering this question "yes" were over 75 percent unionized. That the effects of unionism on personnel management are most noticeable in the highly unionized plants is a general conclusion which is true in nearly all parts of both the Toledo and the national surveys. It should be noted that the changes observed in these, the most affected plants, can be used as indications of the trend of unionism's effect on employer-employee relations in the future.

Seniority Affects Promotion

PROMOTIONAL opportunities have been altered by unionism in 15 plants, all of them over 50 percent unionized. Ten firms promote strictly along lines of seniority. Eight companies in the latter group report that this setup is due to the recent influence of unionism.

A substantial proportion—22 out of 31 companies—replied that grievances beyond the jurisdiction of the foreman must be settled through the unions. Thirteen of these indicated that this has not always been true in the past. The national and the Toledo surveys are very similar in this regard. Conclusions reached are also identical—that joint representation is one of the first objectives of unionism, and that the growing strength of the unions will lead to their increased participation in the general personnel program.

It is interesting to compare some of the following representative answers to the questions asking for a prediction of the future by local men with those made by men in other sections of the country.

Long Run Effects

QUESTION 1. *What do you believe to be the long-run effect of the widening scope of unionism on your personnel program?*

"Advent of unionism in this plant made it necessary to install a personnel department. Management has become more conscious of the increasing importance of human relationships as a concern of management. In our case the union has been

of help in establishing a personnel program. All dependent on union officials and their philosophy.

"Believe seniority demands take away incentive for effort on the part of new employees, therefore, retards their progress and the company's."

"If we can secure the cooperation of the union in matters affecting production and sales, we will mutually gain the benefits derived from management and labor working together."

Responsibility of Labor

QUESTION II. *What must labor do to solve future problems?*

"Realize that any steps they may take against industry will likewise affect them. We also feel that labor should have more confidence in its appointed leaders with negotiations are carried on between both sides and when a mutual agreement is reached."

"Use intelligence in demands, making honest and complete investigation of grievances before presentation to management."

"Avoid radical leadership and definitely forget seniority demands. Also avoid the closed shop demand as this is un-American and retards rather than promotes good labor organizations."

Management's Job

QUESTION III. *What must management do to solve future problems?*

"Adhere to agreement if there are agreements. Provide good working conditions, fair wages, honest treatment. Provide high type supervision."

"Be fair, honest and use more care in explaining inability to meet demands of the above type when it cannot do so wholly or in part."

"Deal absolutely fair and above board with labor. Should also realize that labor constitutes a potent force toward greater efficiency and production and inviting their suggestions and recommendations toward that end."

Good Lighting Involves, the Proper Amount and its Proper Distribution to Ensure Absence of Glare, Troublesome Shadows and Dark Surroundings. Good Vision Involves Good Lighting, Adjustable to the Work and the Individual, and Correction of Eye Defects.

Work *and* Its Illumination II

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ONE of the most important factors in lighting is glare. Glare may be from either the work or the source of light. Glare from the work comes at much lower intensities for Mazda light than for daylight. This is due partly to the color of the light and partly to the difference in diffuseness between daylight, and the illumination given by artificial lighting devices. Mazda light, for example, is yellowish. Yellow light becomes glaring at lower intensities than white light. Higher susceptibility to glare is one of the ways in which the eye shows its intolerance for colored light. Mazda light is poorly diffused as compared with daylight.

Glare

In light not well diffused the presence of the unscattered beams of light tend unduly to produce glare because of specular reflection, the tendency taking the form of shine when the specular reflection is even, and of sparkle points when it is uneven. Direction of light also is an important factor in glare from the work. The light should be so directed on the work, particularly if it is not well diffused, that none of the light specularly reflected enters the eye. Of the three possible ways of reducing glare from the work: direction of light, diffuseness of light and the attempt to eliminate specular reflection by polarization (Polaroid glass), the proper control of direction of light is much the most effective, the most feasible and the least expensive. This control can of course be best utilized in local lighting. Diffusiveness of light has most to be depended upon in general lighting.

Glare from the source of light should of course in all cases be eliminated. This

can be easily and effectively done by incorporating in the lighting fixture properly constructed shields or glare baffles.

Two Kinds of Glare

GLARE from the work is of two kinds, simple and veiling. Simple glare alone will be considered here. Simple glare is a too high brightness, due to excessive stimulation of the sensorium by light. When reading from a printed page, it may be recognized as beginning at the intensity at which the brightness of the page becomes uncomfortable. As already noted in the experiments on intensity of light, this point was determined as well as the preferred amount of light, and the lower limit of intensity for comfortable reading.

With respect to these determinations there are again two points of major interest: in this case, the amount of light at which discomfort begins, and the wide range of individual differences in this amount, which differences may be taken as, roughly at least, measures of differences in susceptibility to glare. Some indication on both these points has already been given in the preceding statement of results under the heading: *Upper Limit for Comfortable Reading*. From these results it might be considered that those who have an upper limit of less than 10 ft-c are more than usually susceptible to glare, while those who have an upper limit of more than 40 ft-c are less than usually susceptible to glare.

Evenness of Illumination

EVENNESS of illumination, as a factor, has not the importance that was once ascribed to it. Within the limits, that are apt to occur in a modern lighting situation, its importance is not significant. So long as high and glaring brightnesses are eliminated from all parts of the work, and from the field of view, and so long as there is enough light on all parts of the work, and in the field of view, considerable differences in the illumination may be present without harmful effects on the eye. Indeed in the illumination of a room in which a number of people are working, unevenness of illumination is often of advantage, inasmuch as it affords an opportunity for grouping or locating the workers with respect to their need and tolerance of intensity of light.

This has been shown in several papers, but more particularly in "Some Experiments on the Eye with Pendant Opaque Reflectors Differing in Lining, Dimensions and Design," *Trans. Illum. Eng. Soc.*, 1917, vol. 12, pp. 464-487.

Mixtures of Day and Artificial Light

THIS is important in connection with the problem of late afternoon lighting. It is important also in connection with the lighting of many rooms and buildings, in which it is necessary to supplement the daylight with artificial light for all or part of the time. The question of the harmfulness of the mixture has been raised chiefly, however, in connection with the problem of late afternoon lighting.

It is a matter of common experience in the lighting of buildings that more light has to be used to give satisfactory visibility in the late afternoon and early twilight than is required later in the night. Formerly this was thought to be due to the mixture of artificial light with daylight. At that time it was generally believed among lighting men that this mixture was unfavorable to vision. In a somewhat elaborate series of tests and experiments⁸ we have shown that such is not the case. In fact, as might more reasonably be expected, the mixture of artificial light and daylight gives better and more comfortable vision than an equal amount of artificial light alone.

Findings by Tests

THIS was shown by mixing Mazda light and daylight in equal proportions at different levels of intensity and making a comparison of the effect on the eye of these mixtures with that of daylight and the artificial light alone of the same photometric intensities. In one set of tests the artificial light, the daylight and the mixture of the two, all came from the same light-well and all were passed through a diffusion sash of ground glass hung beneath. The distribution effects and degree of diffusion were thus made as nearly as possible the same.

In another set of tests the daylight and the artificial light were obtained from the light-well, and the mixed light was formed from the artificial light coming from the light-well and the daylight from side windows. The object here was to make a closer approximation to the illumination effects, under which the mixture of artificial light and daylight is ordinarily used in the lighting of rooms. In both sets of tests the intensity of the daylight, its proportion in the mixture, and the intensity of the mixture itself were regulated by a special arrangement of thin and light-proof curtains too complicated to be described here. The tests used were acuity of vision, speed of discrimination, and power to sustain clear seeing continuously for a given period of time. In all three tests the best results were given by the daylight, the poorest by the artificial light, and an intermediate value by the mixture of the two.

Slow Adaptation of Eye

IN FURTHER experiments, again the details of which are too long and complicated to be given here, we showed by test that more light is actually required during the late afternoon hours, to give the same level of performance by the eye, than is required at night or during the day in an inside room, and that this is due to the lag in adaptation of the eye. That is, the eye has been exposed during the day to a very high intensity of light which decreases rapidly in the middle and late afternoon; and in its recovery of sensitivity the eye is not able to keep pace with this failing illumination. The deficiency is then primarily in the eye owing to the conditions of adaptation imposed, and not in the mixture of daylight and artificial light. The question, then, of the harmfulness of the mixture of daylight and artificial light can be safely dismissed.

Further, in 1909, one of the suggestions we made, for improving the adaptation conditions in late afternoon lighting, has been made very effectively and conveniently possible by the use of the photoelectric cell to turn on the artificial light, when the daylight has decreased to a certain value. Our suggestion was that the artificial light be turned on earlier in the afternoon, in order to prevent the rapid change in illumination caused by the quick decrease of daylight in the later hours. In this way the eye is given a better chance, in recovering its sensitivity, to keep pace with the changing light during the transition from day to night illumination, thereby reducing the need for more light in the late afternoon hours due to the lag in adaptation.

The Work

SPACE will be taken here only for a consideration of the reading of the printed or written page.

Type and Paper

WITH respect to the surfacing of the written or printed page, the best results are obtained with a mat or flat ink on mat paper. This is again a question of specular reflection. Light specularly reflected from an object is not focused into an image on the retina. It is represented merely by a spot of unfocused light. If focused, it would form an image of the source of light, not of the reflecting object. However, in looking at an object we focus for it, not for the source of light. Light diffusely reflected, since it begins its spread at the reflecting surface, alone forms an image of that surface on the retina. We thus see objects only by diffusely reflected light. The light specularly reflected, since it forms an overlay of unfocused light on the image, blurs that image and is, therefore, not an aid but a hindrance to vision.

Color of Ink and Paper, etc.

WITH respect to color of ink and paper we have found:^{1, 2}

(1) The best results are given by black ink, and any color as background is inferior to white for the discrimination of details in black. There is a greater sensation difference between black on white than black on any of the colors and, therefore, greater visibility. This is so plain as to be readily apparent to anyone who makes the comparison on the printed or written page. Also black on white is very comfortable when the paper is free from gloss and the ink as nearly free from gloss as is at present possible.

Any feeling against this combination must have arisen through the use of glossy paper or bad lighting conditions, *i.e.* a too high intensity of light or conditions that produce or accentuate specular reflection and glare. Further, as a practical matter, the attempts that have been made to print newspapers, magazines and books on colored paper have met with a great deal of complaint from the readers. The more persistent use of faintly tinted papers is probably due to the difficulty in producing a satisfactorily mat white paper.

Colored Paper Not So Good

(2) Saturated colors as background for writing or printing in black are inferior to unsaturated colors; in other words, the more color there is in the paper the worse is its effect on the welfare and comfort of the eye. There are two reasons for this—the effect on visibility and the effect of the color itself.

(3) The darker shades of color are inferior to the lighter tints.

(4) Of the colors, when all are equalized in saturation and brightness, yellow gives the best results. Next in order of merit is yellow tending towards orange-yellow. However, as already stated, all colors are inferior to white as a background for the discrimination of details in black.

(5) Any toning of the paper towards green is unfavorable in that it increases the tendency to ocular fatigue and discomfort, in spite of the common belief that green is restful to the eye. This belief has no doubt been based on the feeling of relief which comes with viewing distant woods and fields. Here the conditions are not a green light or a green background on which to view details, but the far seeing of objects of low brightness, both of which conditions are restful and comforting to the eye.

Paper Must Be Good

SO-CALLED "white" papers may tend almost imperceptibly towards blue or yellow. For use under Mazda light it is sometimes possible in such cases to select a bluish white that will give a better result than the yellowish white, that is, when the tendency towards blue is just enough to neutralize the excess of yellow in the light. Where scientific tests are not possible it is a fairly safe practical guide perhaps, to select the paper that looks the whitest under the light that is to be used.

In the selection of paper, besides color the following additional factors are of course to be considered: reflection factor, gloss, hardness and opacity. In the printing of newspapers, telephone directories, catalogues and large books of various kinds trouble often arises from the use of paper that is too thin and not sufficiently hard and opaque. Hardness, for example, is needed to take a clear impression of the ink, and opacity to give a good background and to prevent the confusion so to speak of seeing through the paper, seeing the print on the other side, etc. Obviously good visibility can not be had under such conditions.

The above conclusions on color and paper are based on tests of visual acuity, speed of visual discrimination, power to sustain clear seeing, and tendency to produce ocular fatigue and discomfort. In addition we have used an instrument devised by us called a Visibility Comparator. This instrument enables direct quantitative comparisons to be made of the discriminability or visibility of printed or typewritten material on different samples of paper and of different colored illuminations on a given sample of paper.

A partial bibliography is appended comprising, in addition to those already referred to, chiefly articles of a more general scope.

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"These Tests are Not 100% Perfect But the Idea Behind Them is Correct. If Additional Companies Install this System Their Experiences can be Correlated and Utilized to Answer Problems of the Future." (from Executive's Statement.

Personnel Selection *in Aviation Industry*

By RICHARD S. SCHULZ

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GEARS must mesh, cams must rise and fall in proper timing, power must be properly applied to the great machines of steel and iron in the factories if manufacturing is to operate smoothly. But friction or a defective part in the human synchronization which guides these mechanical marvels will result just as surely in the wear and tear that needs only time to become disintegration. Therefore, the executive ear must be eager to detect the first faint indication that something is amiss in coordination—the 'lubrication' of the human factor in our industrial organization.

Statement by Mr. Walter D. Fuller

THIS statement was made by Mr. Walter D. Fuller, President of the Curtis Publishing Company at the last International Management Congress, and strikes the keynote of the problem that faces large and small business companies today.

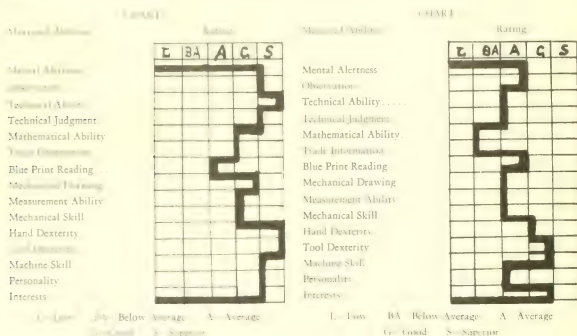
Recently, an opportunity was offered for a precise investigation of the human factors in an enterprise manufacturing auxiliary equipment for the aviation industry. The practical situation may be simply stated as follows.

1. What are some of the essential facts which may aid in development of guiding principles for human organization?
2. Is it possible to obtain for each employee dependable measures of ability, knowledge, special skill, interest, unusual talent, and personality?
3. Once we have such information, in what way can it be used?

Charting of Abilities

Steps were taken actually to obtain some of the answers to these questions for this organization employing several hundred workers. A special *Job Sample* (Appendix) was set up to this plan. During a period of several months each employee in the organization was given a variety of special psychological tests in order to measure those qualities which would be of practical value in daily management and development of men. Data were accumulated and 'blueprints' or charts were drawn for all employees.

At the same time, applicants for positions were examined as comprehensively as employees. With regard to the use of these tests in selection procedures, it is important to note that their use makes it unnecessary to depend primarily upon



interview judgment or personal impression. The tests yield unbiased facts or objective measures. They help to find out whether an applicant has the ability for a particular job and the talent essential for further development.

Charts 1 to 4 show some of the information obtained with the full cooperation of employees and management.

Has Ability and Personality

Chart 1 indicates the pattern of abilities of a recent high school graduate now employed as an apprentice. He was selected on the basis of the test results from a group of several dozen applicants of equal training and education. Actual reports from the foreman on his work in the machine shop indicate that he is well suited for development in the direction of mechanical and machine work. His

ratings are good on tests of mental alertness, technical ability, hand and tool dexterity, and machine skill. Interestingly enough in addition to having good talent he also has an effective personality. This case briefly illustrates the application of tests in the selection of suitable apprentices for machine or mechanical work.

Chart 2 is an interesting contrast. Here is a man 39 years old who might be called an 'expert' machinist. His work as a lathe operator has been satisfactory. He has had experience in several organizations. On the basis of his work as a machinist, he was assigned as assistant foreman. In this instance, the results of tests in the *Job Sample Laboratory* indicated that this man was not suitable for supervisory work. In human organization, however, the inevitable probable error, even in scientific methods, must be kept in mind.

This man was assigned to the job of assistant foreman in spite of the fact that the psychological tests did not favor an assignment to supervisory responsibility. His rating on the tests showed that he was a good semi-skilled machinist and a mediocre skilled machinist. A careful examination of the chart shows that he lacks certain fundamental qualities for supervising other men. His technical ability and judgment are below average. Ability to use measurement instruments is below average. His trade information, that is his specific knowledge about how to operate machines, ways of machining, etc., is sadly limited. Even specific information on the lathe, with which he has had much experience, is below average. His mechanical skill is below average.

More important than the lack of high-grade ability for machine and mechanical work is the fact that he does not have an adequate personality or the ability to deal with people in a free and easy manner. He does not have an interest in people, a strong desire to develop men, or other qualities essential in supervisory work.

Very Poor Supervisor

A FEW months afterward comments by the factory superintendent concerning his work as supervisor shows the following ratings:

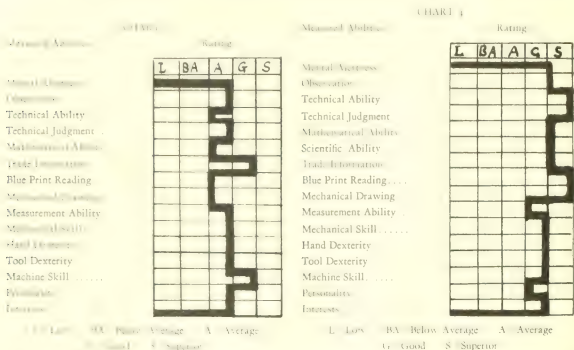
1. Ability to plan work and obtain results—Doubtful
2. Training of men in specific job duties—Doubtful
3. Ability to handle unusual problems in everyday work—Doubtful
4. Interest in personal development—Doubtful
5. Interest in broad problems concerning the organization and production—Doubtful

Briefly, this man lacked three-quarters of the qualities essential for success as a supervisor. He was a craftsman but not a teacher, a salesman, or a business man.

Chart 3 shows a young machinist who at the present time is doing good work on a lathe. His foreman and the inspection department report that he has many of the qualities of a skilled machinist. The pattern of abilities supports this opinion. He has most of the qualifications essential for development as a machinist. He

would, however, be limited for high grade technical training. He has only average technical judgment and mechanical skill, and below average technical ability. His average personality rating indicates that his possibilities for subsequent supervisory responsibility are doubtful.

His personality and interests are more suited for work with machines than with men. As in the case of the older man summarized in Chart 2, the most likely long-term career for this man is as a craftsman and not as a supervisor. The records on this man's production, quality of work, ability to profit from training, and personal qualities indicate that he is satisfactory for long-term development. An attempt



to place him in a supervisory job at a subsequent date would be a risk. As a good machinist he is likely to be a poor foreman.

Engineers Need Creative Ability

SIMILAR information may be obtained in the case of high-grade engineering personnel. Here the problem is complicated by the fact that there are many theories prevalent concerning the qualifications of a good engineer. The school record may be one indication of a good engineer but is quite often a disappointing lead. In a manufacturing organization there is a limit to the number of technical personnel. Therefore an engineer should have sufficient flexibility or adaptability for a variety of assignments. This is desirable particularly for organizations in the machine and metal trades.

Mere ability to do work on the drawing board or to develop complex mathematical formulæ is not enough. The ability to improve old ideas, to further de-

velop new ideas, or to use technical experience effectively is equally important. An engineer should have not only knowledge and skill but practical judgment and creative ability.

Chart 4 illustrates wide adaptability of an engineer with superior technical ability and good mechanical skill. The percentage of engineers who possess such talent as this is small. The records in this organization have been compared with other organizations, and the indications are that, considering all types of curricula, less than one engineer in ten is prepared to perform as well as to plan. This limitation among engineering applicants and engineering graduates is a difficulty challenging a number of industries.

The talent illustrated in Chart 4 depends very little on the type of engineering curriculum. As a matter of fact, men may be found who have unusually good engineering aptitude and who have never had engineering training. The aim of the tests is to discover engineers, not men who have taken engineering training. A short-cut in selection, training, and development of engineers is a short-sighted policy with this caliber of personnel.

Engineers Who Can Plan and Do

THE selection, training and development of engineers in manufacturing organizations has tremendous implications. Machinists and mechanics may be of a high caliber, but the broader problems of organization and coordination of human effort will be handicapped if the engineers lack either special abilities necessary in their technical work or skills in practical work with machines and equipment. In the organization which we are describing, the attempt has been made to select engineers who have abilities in machine and mechanical work as well as in engineering.

A mechanical engineer or even an engineer with an electrical, civil or chemical major, is a much better engineer if he has the talents which are related to getting things done rather than primarily the talents of putting things on paper. The success of an engineer depends upon talents related to the manufacture and improvement of products as well as upon such abilities as drafting, detailing, and routine design. An engineer in this organization must be able not only to plan the job but to do the job whether it be in the machine shop or in the field as a mechanic.

With such comprehensive data as that indicated in the above charts for everyone in the organization it was possible to plan a program whereby employees were gradually reassigned. Such reassignments were considered not only in relation to the employee's ability to succeed on a particular job, but also in the light of his potentialities for long-term development and general adaptability. In view of present-day industrial relations, it is important not only to find the right employee for the right job but also to consider the right career or route of progress in the organization.

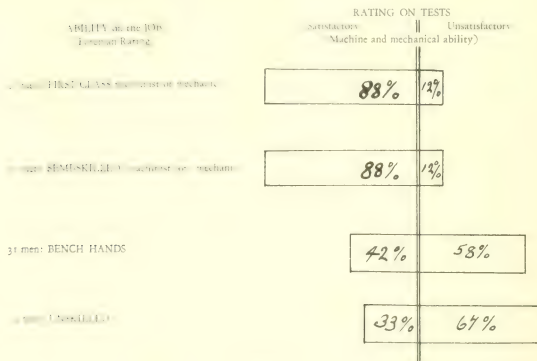
Executive Foresight Used

THIS story has been etched in high lights and the methods merely indicated. Scientifically measured facts about each individual's talents and abilities have been accumulated. Management is thereby in a position to reassign men gradually, and in such a way as to make best use of their abilities and interests and to lay the groundwork for future lines of promotion. Such a clear understanding of human factors facilitates the development and coordination of a business organization.

The talents of the employees are known. As the older employees are superannuated, the younger men take their places. Each employee is selected not only for his ability to work at one job but for a capacity to develop along other lines. Training is continuous. Transfers and promotions are based on known and carefully considered facts and not on opinion. In other words, the problem of job security and the maintenance of skilled and technically trained personnel has been more accurately defined. The fitting of all these facts together for successful management calls for the highest order of executive foresight in a practical policy of mobilization of human resources.

SUMMARY OF RESULTS

RATINGS ON EMPLOYMENT TESTS
compared with ratings on ABILITY of
employees in a MACHINE SHOP.



PERSONNEL SELECTION IN AVIATION

NOTE

1. The ratings on employment tests show high agreement with independent foremen ratings. 90% of the results of 1/2 of all men are accurately placed by the selection tests.
2. A comparison of results a year later shows that 15 out of 100 men who were placed by the tests are in the right work.
3. The tests rate experienced machinists and mechanics as satisfactory. Men with little or no experience:
 Men with more than 3 years mechanical experience: 90% of men rated satisfactory by tests are also rated satisfactory in work by foremen.
 Men with less than 3 years mechanical experience: 85% of men rated satisfactory by tests are also rated satisfactory in work by foremen.

Aviation Executive's Comments

IT HAS BEEN our opinion for many years that the answer to a lot of troubles was the intelligent determination and application of an individual's inherent aptitudes. For a number of years, our employment was practically stationary, since it was customary to simply raise and lower hours as the business cycle rose and fell, maintaining the same personnel year in and year out. In 1933 our business began to expand, and shortly it was beyond previous limits. Therefore, it was necessary for us to begin to add to our personnel. Bearing in mind the matter of properly placing each individual, we attempted, by questioning, to determine the inherent abilities of the applicants.

We soon found out that we were unable to get the information in this manner and that it was costing us considerable time and money, particularly time, and at a period when time was very valuable. We therefore looked around to see if anyone had developed a more scientific method of determining ahead of employment individual abilities or aptitudes. The Psychological Corporation of New York seemed to understand what we were after, and agreed to cooperate with us.

Testing Checked

SINCE the tests that we had developed were entirely new in many instances, in fact the whole matter was rather radical in its departure from the orthodox method of employment, we were sufficiently skeptical to run a counter-check against the work while it was going on. The results were better than we had expected, and the results we have obtained since have confirmed the original, in so far as the tests were concerned. In other words, he was able with the tests to tell us pretty accurately whether or not a prospective employee had the inherent ability to develop in our work the way we wanted him to. At first we made the mistake of using these tests entirely. Since then, however, having learned more about the value of the tests, we are getting better final results.

Roughly, there are four things we want to know about an applicant:

1. his inherent ability,
2. his stability,
3. his aptitude, or willingness to work,
4. his experience.

The tests have proven pretty accurate in giving us the applicant's inherent abilities. That, however, is not all we need. Some applicants who pass the tests with a very good rating do not prove out eventually, due to instability in character or a lack

of that spark or bug that causes a man to try. On the other hand, those employees who had the natural ability plus stability and the desire to work came along very fast and are our top people. Some of the best men we have in the organization today had practically no experience when they came with us.

Can He Handle His Liquor

STABILITY in a company of this type is very essential, and by stability I mean really moral character, because the most able man, no matter how aggressive or how much experience he has had, is of little value to us if he cannot handle his liquor, his money, or his family affairs.

I believe, however, that the proper placing of a man, that is, an intelligent determination of his natural abilities and an assignment to a job in which those natural abilities are given full play, is of great help in developing his moral stability. In fact, we have several cases which would be pretty good proofs of that contention. A man's experience, of course, is something that we can get to a certain extent from his previous employers and verify very quickly after he goes to work for us.

Although, in employing youngsters without experience, ability and stability and umph are of equal importance, his inherent ability has been the stumbling block prior to the installation of these tests. In other words, in a good many cases, we could get a fair idea of his probable stability and umph, but there was no way to determine whether or not he really had mechanical or engineering ability.

Tests Not 100%

MANY applicants who have been certified to us by people who knew them as having been always very much interested in mechanical matters turn out to be complete flops when they actually get into manufacturing. On the other hand, a youngster that we took on here about a year and a half ago, who appeared to have never given mechanics any serious thought, but whose test rating chart showed him to have considerable mechanical ability has turned out to be one of our most promising youngsters.

I am fully convinced that these tests are not a hundred per cent as yet, but the idea behind them is correct, and I believe that if additional companies install this system their varied experiences can be correlated and utilized to advance our present knowledge and this system will be the answer to many ills in the future

The Most Indicative Personality Traits for Success in Selling are Dominance and Introversi-
on. Low-cost Salespersons are Extroverts and are
Dominant, while High-cost Salespersons are In-
troverts and are Submissive.

Personality *and* Success *in* Selling

By PETER HAMPTON

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THE present paper is an attempt to review some of the more important recent investigations on the relation between personality traits and success in selling.

Some eighteen years ago the concept of personality trait received scientific sanction with the writings of Allport (1), and since then many studies have been made of the relation between personality traits and other factors.

Bernreuter Test Used

THE first investigations to be reviewed are those reported by A. F. Dodge (2, 3, 4). Dodge has published three separate studies on this problem. The first of these (2) was undertaken, among other things, to find the relation between social dominance and success in selling. The subjects employed consisted of 50 traveling salesmen, 50 retail salesmen, and 54 retail saleswomen.

The personality test used to determine the degree of social dominance was the Bernreuter Personality Inventory; while the criteria of success were: (a) a minimum of one year's employment in selling with a single employer, (b) three or more years of experience in selling, and (c) longer experience in selling than in any other occupation in which the subject had previously been engaged. All of the salesmen and saleswomen to whom the Bernreuter Personality Inventory was administered were regarded as successful in their occupation of selling on the basis of the above criteria.

The dominance-submission scores of the three groups of salespeople were found to be as follows: The traveling salesmen obtained a median score of +70, with a probable error of 5.9. The retail salesmen obtained a median score of +56, with a

probable error of 10.6. Lastly, the retail saleswomen obtained a median score of +45, with a probable error of 8.4.

Salesmen Have Social Dominance

DODGE concluded from this study that experienced (successful) traveling salesmen and retail salesmen and saleswomen score fairly high in social dominance. The traveling salesmen score above the retail salesmen. This, he thought, is to be expected because the traveling salesmen, due to the type of selling in which they are engaged, have to be more aggressive than the retail salesmen. The implication here is that dominance and aggression (extroversion) have a positive correlation. This contention is supported by other psychologists, e.g., Bernreuter.

In spite of the positive relation between dominance and success in selling, however, Dodge cautioned against using a high score in dominance as a basis for vocational guidance in business. There are many other, no less important, elements which make for successful selling. High scores in dominance should therefore be considered in conjunction with other traits of personality.

While the length of time in business is an indicator of business success, it is not so good or decisive a criterion as output, earnings, or credit rating. Fortunately, in his second study of social dominance and personality, Dodge improved upon his criterion by taking the ratings made by the personnel manager and his staff as the criterion of business success. Another reason why Dodge's second study strikes much closer to the heart of the problem is that actual correlations are drawn between personality traits and success in selling. The coefficient of correlation is a much more precise indicator of the degree of relationship than the median.

Similar Results Second Time

THEN, too, Dodge used in his second study a group of salespeople who form a much more solid group than did the subjects of his first study. The latter were culled from the ranks of the unemployed, while the subjects of his second study, numbering 75 (41 men and 34 women), were all salespeople employed by one firm, a large department store, and actually selling when the personality test was administered. The personality test used was again the Bernreuter.

The results of this second study largely corroborated the results obtained in the first study. As a matter of fact, in several instances the median score was higher than it was in the first study. Thus Dodge found that the median score for the best group of salesmen was +100; for the poorest group of salesmen +93.5; for the best group of saleswomen +48; and for the poorest group of saleswomen +17. With one exception, the median score for the poorest group of saleswomen, the median scores in the second study were all higher than in the first study.

The indication, on the basis of these scores, is in the direction of higher scores in social dominance for the best salesmen than it is for the poorest salesmen. This

also holds true in the case of the best and the poorest groups of saleswomen. To what extent this tendency is significant, however, can only be ascertained by finding the coefficient of correlation between sales success and scores of dominance

Correlation Found Not Strong

DODGE realized this and proceeded to correlate the scores made by his subjects with respect to the six traits tested by the Bernreuter Personality Inventory, e.g., neurotic tendency, self-sufficiency, introversion-extroversion, dominance-submission, confidence in oneself, and sociability, and business success as indicated by the ratings of the personnel manager and his staff of the department store in which the subjects were employed.

The results of this correlation study were not significant. The correlations between scores in social dominance and sales success were $+ .16 \pm .16$ for men and $+ .31 \pm .18$ for women. None of the other correlations between scores on the different personality traits tested by the Bernreuter Personality Inventory and success in selling was any more significant. All that can be said from this study is that there is a positive tendency for successful retail salesmen and women to score higher in social dominance and in some of the other traits, than comparatively unsuccessful retail salesmen and women, but that this tendency is not strong enough to permit any far-reaching conclusions for purposes of vocational selection or guidance.

Test Broken Down

THINKING that he might obtain a more significant relation between personality and sales success, Dodge next sought to analyze the Bernreuter Personality Inventory in such a way as to record the percentages of "yes", "no", and "?" given by the best and the poorest salesmen and women to the 125 single items in the Bernreuter Personality Inventory. This analysis did away with the sharply defined traits as advanced by Bernreuter and by Flanagan (6), but it left room for general tendencies of personality as implied by the four Bernreuter and the two Flanagan traits, which, Dodge thought, would be specific enough to tell in fairly general terms what a successful salesperson is like.

As a result of this analysis, Dodge found that out of 125 individual items of the Bernreuter Personality Inventory, 62 were indicative of success in selling, i.e., the answers of the successful salesmen to these 62 items were sufficiently different from the answers of the poorest salesmen to these items that they could be used for a rough scoring system. A score of one was given for each answer to an item that agreed with the predominant response of the best salespeople. The relation between these new scores and success in selling proved to be very significant, the correlation being fairly high. There was no overlapping of scores between the best and poorest groups of salespeople. The scores of the best salesmen ranged from 40

to 49; those of the poorest salesmen from 26 to 39, those of the best saleswomen from 36 to 46; and those of the poorest saleswomen from 26 to 35.

In order to test the validity of the high relation between these new scores and sales success, Dodge administered the 62 items which had proven helpful in selecting the best from the poorest salesmen and saleswomen, to a separate group of salespeople. This control group of subjects was divided into above average, average, and below average salesmen. When the scores of these three groups were correlated with success in selling, it was found that the coefficient of correlation and probable error of the salesmen were $+.60 \pm .09$, and the coefficient of correlation and probable error for the saleswomen were $+.36 \pm .14$. By improving his scoring scale somewhat, Dodge was able to raise these correlations for salesmen and saleswomen, respectively, to $+.71 \pm .07$ and $+.39 \pm .14$.

The general outcome of this study, then, indicates that there is a significant relationship between personality and sales success, but that the traits as defined in such personality tests as the Bernreuter Personality Inventory do not represent this relationship. These and similar traits, according to Lorge (7), have been derived by fiat, and have thus little meaning. The meaning of such traits has to be established by experiment. This matter of specific personality traits, as now defined, seems to be merely another case of putting the cart before the horse, of evolving a principle and then trying to make the facts conform to this principle.

Follows Link's Suggestion

A MUCH more fruitful attempt would therefore lie in the endeavor, already suggested by Link (8), of trying to determine, on the basis of experimentation, not what a successful general personality is, but what a successful specific sales personality, engineering personality, teaching personality, etc., is. Dodge followed Link's suggestion in this respect, and in his third study attempted to find out what the successful sales personality is like. To do this, he tried to find the outstanding traits that characterize the successful salesperson as indicated by the answers to the various items of the Bernreuter Personality Inventory made by the 75 salespersons acting as subjects.

Devising a scoring system similar to the one described in his second study, in accordance with which there was a fairly consistent tendency for the best salesmen to make distinct answers to 41 of the 125 items of the Bernreuter Inventory, Dodge grouped the items in such a manner as to indicate what generalized traits they represented. He succeeded by means of this procedure in selecting the following traits which he thinks characterize the successful salesperson. They are:

- | | |
|------------------------|---------------------------------------|
| 1. Emotional stability | 6. Not self-conscious |
| 2. Self-confidence | 7. Little tendency to talk about self |
| 3. Self-sufficiency | 8. Not resentful of criticism |
| 4. Aggression | 9. Radical and unconventional |
| 5. Sociability | 10. Willing to take responsibilities |

Further studies of the relation between personality traits and sales success have been reported by Stead (11), Husband (12), Ream (13), Schultz (12), Lovett and Richardson (13), and Anderson (14). The study reported by Stead was carried out by the Worker-Analysis Unit of the Occupational Research Program of the U. S. Employment Service. In this study the relation between success in selling and vocabulary, arithmetic reasoning, memory for numbers, clerical aptitude, copying and completion, interests, appearance, personality (emotional stability), and personal data or information was investigated. The criterion of success employed was the objective store personnel record of the salespersons.

Two groups of subjects were used, numbering 109 and 153, respectively. These consisted of two samples of salespersons from two large department stores located in different cities. The measurements used in this study were the O'Rourke Survey Test of Vocabulary, the O. R. P. Arithmetic Test, the Taylor Number Copying Test, the O. R. P. Revision of the Trabue Completion Forms, the O. R. P. Interest Questionnaire, the O. R. P. Multiple Choice Personality Test, and Personal Appearance Rating, and an O. R. P. Personal Data Sheet.

Stability and Emotional Balance

Stead reports that on the basis of this study the following results were obtained: It was found that appearance is not sufficiently related to selling success to be of significance. Vocabulary, clerical aptitude, and completion showed a slight positive correlation with success in selling. A multiple correlation of $+0.32$ was obtained. With respect to interests it was learned that the successful or better salespersons show greater interest in activities and in people than do the poorer salespersons. The better salespersons also proved to be more stable and better balanced emotionally than the poorest salespersons.

The highest positive correlation proved to be between success in selling and social and economic status, height, job previously held, and education. In the case of education, for instance, it was found that high school education and success in selling correspond very highly. No correlations are given for sales success and social and economic status, height, jobs previously held, and education. The multiple correlation between the combined battery of personality, interests, personal data and success in selling was found to be $+0.65$.

Husband undertook a comparative study of sales success and the following factors: neuroticism, self-confidence, self-sufficiency, extroversion, age, experience, and efficiency. As a criterion of sales success he used ratings by superiors. These ratings were based on production records and the superior's general knowledge of the salespersons. Husband used 64 subjects in his study, with men and women equally well represented. The subjects were sales clerks from a number of stores in three different cities. The clerks sold yard goods, drugs, leather goods, dresses, art supplies, jewelry, lingerie, and children's wear. The ages of the sales clerks

ranged from 21 to 41, with an average age of 28 years. Only one of the 41 of the Wisconsin Scale of Personality Traits.

Age, Experience and Efficiency

ACCORDING to this study, the successful salespersons are well balanced emotionally, self-confident, self-sufficient, and extroverted. Age, experience, and efficiency were found to have no direct relation to success in selling.

Ream made a study of success in selling and intelligence, extroversion-introversion, conservatism-radicalism, will-temperament, adaptability, and social intelligence. He chose for his criterion of success the salesman's production while attending an insurance school (actual selling was compulsory for graduation). The subjects studied consisted of two groups of students of the School of Life Insurance Salesmanship, Carnegie Institute of Technology. Group one consisted of 48 members, while group two consisted of 75 members. The following methods of measurement were employed: Bureau of Personnel Test V1 (Intelligence Modification of Army Alpha Test), Downey Will-temperament Test, a social relations test (measuring social intelligence), a meeting objections test (objections encountered in selling) and a prediction test, the C. S. Yoakum and Max Freyd Interest Analysis Test, and a personal history record (age, height, weight, nationality, marital status, dependents, complete record of schooling, complete record of business history with previous selling experience, etc.).

Meeting Objections Important

IT was found that the personal qualities characterizing the successful insurance salesmen are the following: average intelligence, extroversion, fair degree of sociability, adaptability, economic and social conservatism, ready decision, and quick and ready reply to objections. The successful insurance salesmen scored especially high on the following tests: meeting objections, interest analysis, and personal history record.

Schultz, Lovett and Richardson, and Anderson, working independently with insurance salesmen and department store salespeople, all agree on the basis of their investigations that the most indicative personality traits for success in selling are dominance and extroversion. Of the different factors compared with selling success by these psychologists, dominance and extroversion were the only two personality traits that showed a consistently high positive relation with success.

It must be pointed out, however, that this holds true only of low-cost salesmen. Anderson compared the low-cost and high-cost salespersons of R. H. Macy and Company of New York City with respect to sales success, dominance, and extroversion. He found that 66% of the low-cost group of salespersons were dominant, but that only 45% of the high-cost group of salespersons were dominant. With respect to extroversion and salesmanship, the same tendency was apparent (47%

of the low-cost salespersons were extrovert, 10% introvert, and the remaining 80% ambivert; while only 11% of the high-cost salespersons were extrovert, 49% were ambivert, and 40% were introvert.

Anderson's study thus seems to suggest that the degree of extroversion or dominance required for success in selling depends upon the commodity sold. Low-cost salespersons are extroverts and are dominant; while high-cost salespersons are introverts and are submissive.

Studies Being Continued

THE studies by Dodge, Husband, Ream, Schultz, Lovett and Richardson, and Anderson, on the relation between success in selling and personality traits, are indicative of the work that is being done on this problem. That the problem is an important one is shown by the fact that it has stimulated research for a number of years now, and will likely continue to do so.

The fact that the findings of the different investigators are somewhat at variance with one another is probably due to the imperfection of the methods of measurement used. As these imperfections decrease with continual refinement of methods, more consistent results will be obtained in the study of the relation between personality traits and success in selling. For the time being we must be satisfied with the knowledge that personality is of great importance in successful selling. But, to what degree the individual personality traits contribute to this importance will have to be solved largely in the future.

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Book Reviews

Book Review Editor, MR. EVERETT VAN EVERY

Commissioner of California, Berkeley, Calif.

INDUSTRIAL CONFLICT: A PSYCHOLOGICAL INTERPRETATION

Edited by George W. Hartman and Theodore Newcomb. New York: The Cordon Company, 1941. 583 pp. Price \$5.75.

Reviewed by Book Review Editor

From the pens of professional economists, personnel managers, lawyers, sociologists, historians, political scientists, labor leaders, psychiatrists and psychologists—an impressive assembly we would agree—comes the first yearbook of the Society for the Psychological Study of Social Issues. This organization is affiliated with the American Psychological Association and its first yearbook is devoted to the problems of industrial conflict.

Those most competent to judge have called it the outstanding work in the field of industrial conflict and labor relations. I certainly value it among the ten most important books I can think of in this area. Now I learn that the work is quietly being suppressed.

This 583 page volume is the finest collection of real root-material of industrial relations I have ever seen. You and I will not agree with all the contributors have to say—perhaps that is why it is being withdrawn. You and I, too, are very likely to resent the suppression that will deny us the opportunity to examine and better understand the antagonistic values of employers and employees. How else can the broad area of industrial conflict be understood?

The editors give us a clue in the Introduction. "The present Yearbook is edited from a pro-labor standpoint. A balanced appraisal of the phenomena of industrial conflict seems to indicate that more and higher values are implicit in the struggles of the workers to achieve a richer and a fuller life than can be found in the efforts of owners or their managerial representatives to frustrate these aims. Indeed, only that type of administration can be labeled 'enlightened'—i.e., attuned to the principles and conclusions of scientific method—which seeks to make the productive processes of industry contribute to the better satisfaction of human needs. It is for this controlling end that society supports its educational institutions and its research workers. For them not to recognize this grand expectation is not only crass ingratitude but utter stupidity."

Could it be that some of the contributors have altered their views? that the study of industrial conflict now rests on a different base (as the editors suggest) than when the work was first undertaken? or that the present world conflagration has increased the danger of confusing the real issues and the real problems of in-

dustrial conflict? In any event, this scholarly work is thought-provoking and stimulating.

Such a book does not hold the answers to our labor problems, and the variety of content and interpretation does not make for simple treatment and easy reading. But it does raise issues—basic social issues in the course of doing business today. This is a book for policy-making executives, for those whose administrative responsibilities call for broad interpretations—and for all others who would better understand the underlying causes, motives and issues that go to make up our present industrial conflict.

COST ACCOUNTING

By JOHN G. BLOCKER. New York: McGraw-Hill Book Company, 1940. 705 pp.
Price \$4.00

Reviewed by Book Review Editor

Personnel men are constantly confronting cost accounting and budgeting as two rapidly developing techniques in managerial control. With the advent of cost systems, it is imperative that personnel executives should have some understanding of payroll accounting, the mechanics of establishing and checking incentives, determining and auditing piece-rate performances, and bonuses which are identified with particular jobs and the control of operations.

Many of us think of a cost accountant as a pin-straightening pencil-man who goads the boss to whittle everything down to the point of distraction. And there still may be Scrooges at high stool benches; perhaps that is why we have wage and hour laws and labor relations acts. But modern cost accounting and budgetary control are managerial functions that reach into every branch of a going concern—and the control of labor costs, or rather knowing and determining unit labor costs, is not of foreign interest to the man in charge of industrial relations.

Today personnel managers are relying more and more on data supplied by cost accountants. Companies using a production order cost system can determine accurate department costs within a few hours after the work is finished. Direct and indirect labor, relation of Social Security tax requirements to payroll accounting, the control of labor costs, compensation plans, setting wage-rates and scores of other hair-greying responsibilities frequently bring the cost man and personnel manager around the same table.

This volume is intended as a college textbook on cost accounting and the rapidly growing field of budgetary control, but its clearly written text, with abundant examples of corporate practice, makes it a valuable addition to the industrial relations library.

CIVIL SERVICE IN PUBLIC WELFARE

By ALICE CAMPBELL KEEL. New York: Russell Sage Foundation, 1940. 444 pp.

Price \$7.25

Reviewed by A. E. GILBERT

Designated as "the first word, and by no means the last word, on what is to social work a new and controversial field," this book will do until the next word is written. Sub-titled "A Discussion of Effective Selection of Public Social Work Personnel Through the Merit System," it is just that, and not a presentation of The One Right Answer nor a manual of procedure.

Introduced as a woman of broad experience and distinguished reputation in public health and social work, whose contacts with civil service agencies have been extensive, the author might be mistaken from her writing as a public personnel administrator well versed in public welfare fields, so understanding is her treatment, and so wide is her apparent acquaintance with civil service agencies and their works through all shades and degrees.

Divided into two parts, the book serves two purposes. "Part One . . . Civil Service: Its Functions and Procedures" is intended as a "primer" of civil service history and practice. It attempts to indicate why civil service procedures have developed, . . . the rate and character of their growth, and . . . the part which they play in public personnel administration. Part Two—Where Social Work and Merit Systems Meet— . . . turns to a consideration of those points at which (civil service procedure) particularly affects public welfare."

Especially while "civil service" is being extended to public welfare agencies at the present rate, it is to be hoped that workers in such agencies will read Part One with attention and sympathy. Careful reading of Part Two by both civil service and public welfare workers, should point the way to effective cooperation toward progressive improvement of the public service, for it is rich in suggestions addressed to public welfare workers for furthering sound personnel administration.

The book should interest workers in both fields and should be almost equally attractive to the personnel worker in private enterprise whose points of contact with both public welfare and "civil service" have multiplied in recent years. Personnel people, particularly, might wish that Part One be read and discussed more generally than, doubtless, it is fated to be.

PERSONNEL

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Selecting Men to be Trained

Skilled Labor Supply Inventory

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When the Defense Program Reaches Its Peak, in Twelve to Eighteen Months, There Will be Jobs for Six Million More Workers in Industry, Business, Trade and Transportation. Preparations to Meet this Situation Should be Started Now.

Skilled Workers for Defense Industries

A Skilled Labor Supply Study

BY CHARLES S. SLOCOMBE

Personnel Research Federation, New York, N. Y.

Authorities in Washington estimate that, when the defense program reaches its peak, in the fall of 1941 and/or spring of 1942, there will be jobs for six million more workers. There will be virtually no unemployed.

Not all these six million extra workers will be employed in defense or manufacturing industries. Extra employment will take place in business, trade and transportation. But probably four million will go into manufacturing.

One Worker in Ten Is Skilled

On the average, in the metal trades, one worker in ten must be a skilled craftsman; blacksmith, carpenter, gauge maker, machine setter, millwright, tool-maker, etc. So that the defense program will require an additional four hundred thousand skilled workers.

Where are they to come from? Federal Security Administrator Paul V. McNutt announced in June that there were on the unemployment rolls 657,000 skilled craftsmen. It would appear therefore, at first sight, that there is a sufficient supply of skilled labor in the United States to meet defense program requirements. But—

From 11 to 40 per cent of these workers are 45 years of age or more. If the skill of these men is to be used by industry, men will have to be hired on the basis of skill and experience, without regard to age.

Probably many of the unemployed skilled workers have not worked at their trade for some considerable time. If rehired into industry they would consequently require extensive re-orientation training, and be somewhat inefficient at the start.

It is probable that there will develop an actual shortage of skilled workers in certain key occupations in fast growing new industries. This means that skilled workers with experience in one industry, which is not expanding, may have to be employed by a fast growing industry. For example, a machine tool manufacturer, instead of insisting that a man have experience in that industry before being hired, may find that skilled craftsmen from the business machine manufacturing industry prove satisfactory. Readjustment training would, of course, be necessary.

Many Degrees of Skill

THE word "skilled," as applied to workers, is a very broad classification. There are all degrees of skill. For instance, one company has five grades of tool-makers. There is a possibility therefore that, though the broad picture indicates an adequate supply of skilled labor in the country, there is a real shortage of the most highly skilled workers.

There are two additional sources of skilled workers, apprentices now in training, and production workers with potentialities for development and training into skilled occupations.

On the whole, therefore, it appears that the problem of an adequate supply of skilled labor can be met, though it will require a vast amount of personnel work, especially training, and owing to the time factor involved, peak defense production is likely to be delayed.

Defense Commission Recommendations

TO MINIMIZE the delay, and alleviate the problem, the Labor Division of the Advisory Commission to the Council of National Defense recommends that companies institute upgrade training programs, and carry them out with the aid of transfer services centrally controlled.

Bulletin No. 2 says: "It is essential that top management establish a definite policy of promotion from within in order to train effectively through upgrading. Under this plan one or more individuals are responsible for all placements. They should know as much as possible about the jobs in the plant and about the employees' qualifications to fill them. In addition, employees should be permitted to apply for changes in their jobs without prejudice. An inventory of the working force will classify the employee's potential ability, previous experience, education, his job preference, and length of service. No matter what form this inventory takes—whether through interviews or personnel records, or any other means—such information is essential to training through upgrading."

What results can be expected from such programs? What are the difficulties involved? What different sorts of programs can be set up to meet the special problems of a company?

Survey of Company Practices

IN ORDER to answer these and similar questions, a special survey has been made of the experience of companies in hiring, upgrading, training, setting up a central placement office, surveying anticipated skilled labor requirements, estimating number of employees capable of being upgraded, selecting those capable of benefiting by further training, and the results of segregated training.

The results of this survey are set forth in this report. They show a wide variety of methods and results. Most of the experience is drawn from the 1937 business boom, which is the latest case in which companies experienced great difficulty in obtaining the skilled labor they needed.

A minimum of editorial change has been made in the actual descriptive personnel reports contributed by cooperating companies.

Hiring Skilled Workers

HERE are six instances, dealing with hiring skilled workers by advertisements, out-of-town recruiting, recalling former employees, and through employment agencies. They show the great difficulties (and almost impossibility) of securing the right kind of skilled help by these means.

The only way to overcome this problem would seem to be to hire in at lower levels of skill, and develop the greater skills needed by upgrade training programs within the plant.

Don't Advertise for Skilled Help

DURING the past two years we used the medium of newspaper advertising quite extensively. For the most part we used the local daily and Sunday newspaper. We must admit that little success was had through this method. In order to illustrate how difficult it was to secure skilled help for our tool and machine departments, we have selected a blind ad which was inserted in an issue of the Sunday paper, and the following summary will indicate the results obtained:

Summary	
Replies received.....	173
Not acceptable for employment.....	96
Applications sent to those whom we considered favorable.....	--
Did not reply by returning application.....	19
Applications returned but applications not suitable.....	6
Applications returned to and referred to line organization.....	52
Applications sent back to Employment Department by line organization as unsatisfactory prospects.....	25
Applicants who were asked to call for an interview.....	27
Applicants who were interviewed and not hired.....	14
Applicants who did not report for interview.....	3
Applicants who were interviewed and hired.....	10
Hired but did not report for work.....	4
Hired and reported for work.....	6

Thus it can be seen that out of a total of 173 replies to an advertisement, we were able to secure only 6 mechanics who could meet our requirements. A summary of results from other advertisements would indicate this same lack of success.

Another Company's Experience

CONTACTING new employees through blind advertising was a discouraging experience, as in 557 additions to the skilled classifications, it was possible to secure only 10 individuals in the skilled occupations through the use of blind adver-

rising. In many instances the entire returns from a day's advertising did not result in finding a single capable candidate.

Our records also indicate that of the 557 additions of new skilled help, 84 were employed from applicants recommended by public and private employment agencies; 121 skilled workers were employed as a result of recommendations to the employment office by present employees and friends of the company; 10 were secured through the use of advertising. The remaining 342 of the 557 additions to the skilled force were hired over the counter.

Out-of-town Recruiting

In contacting applicants from "out-of-town" areas the same unsatisfactory experience was had as in the use of blind advertising and employment agencies. In some "out-of-town" areas local newspapers would not accept blind advertising, and in many instances employment agencies refused to recommend applicants for interview by "out-of-town" employers. In addition, instances were recorded where local chambers of commerce and metal trades associations brought pressure to bear on "out-of-town" employers to restrain them from disturbing local labor markets.

Our records indicate that late in 1936 and early 1937, 90 skilled workers were hired from "out-of-town" areas, but that only 37 actually reported for work, and of this number 8 were lost during the first two weeks to return to the point from which employed.

Recalling Former Employees

During our expansion which covered the period 1935-37, we wrote to 205 former employees in skilled classifications to determine if such employees were employed and if they were interested in returning to their former jobs. The result of the 205 letters was as follows:

- 82 employees replied, indicating an interest in securing more information relative to returning to their former jobs.
- 47 were not interested in returning.
- 3 expressed no opinion.
- 44 did not reply to the letter.
- 2 were deceased.
- 59 letters were returned—unable to find.

As a result of contacts established through the 205 letters written, 36 former employees in skilled classifications were finally rehired.

Former employees indicating an interest in securing more information relative to returning to their former jobs, but who eventually refused to accept employment, did so principally for the following reasons:

- Guarantee of permanent employment requested, which could not be made.
- Desired employment more to their liking.

HIRING SKILLED WORKERS

- (c) In business for themselves and did not wish to change.
- (d) Receiving rates of pay in excess of those offered.
- (e) Employed at distant locations, too far removed from the plant
- (f) Reluctance to accept because of fear of loss of skill.

Our data also indicate that former employees considered for reemployment make comparisons between employers on such matters as the following in deciding whether or not they should return to their former jobs:

- (a) Company reputation.
- (b) Wages and Working conditions.
- (c) Stability of employer's business.
- (d) Benefits which accrue from service or seniority rights.

It is also necessary for a former employee who has moved out of the plant area to consider carefully the expense involved in moving household effects and family as well as the effects of uprooting his family, such as changes in school for children, and the separation of the family from established friends.

Using Employment Agencies

During the last quarter of 1936 and the first quarter of 1937 there was a further tightening up in the supply of skilled and semi-skilled help in the area, with a definite shortage developing. Other companies were losing some of their semi-skilled and skilled men, and the only skilled help obtainable in the area seemed to be those tradesmen who were endeavoring to capitalize on the situation and were shopping around from plant to plant to obtain the best possible offer of wages and working conditions.

TABLE 1
REASONS FOR REJECTION

	INTER- VIEWED	HIRED	NOT CAPABLE	AGE	MEDICAL	RATE	MISC.
Nov. 1936.	205	67	116	5	4	5	8
Dec. 1936.	353	96	121	8	5	2	11
Jan. 1937.	320	59	196	3	4	1	57
Feb. 1937.	276	73	169	6	3	2	23
Mar. 1937	339	87	220	3	8	1	20
Apr. 1937.	228	64	135	1	4	5	21
May 1937.	167	26	122	5	4	1	9
June 1937	282	41	230	3	2	1	9
July 1937.	110	16	89	2	—	—	—
	2,280	529	1,398	36	34	16	171

At about this time employment agencies in the area were contacted, and as a result the Employment office was overrun with individuals claiming experience in the semi-skilled and skilled trades. Some of these applicants could not meet our Medical Department requirements; others had been away from the trade so

long that an extended period of re-orientation training would be required; and still others were totally unsuited to the company's work. Following is a summary of the interviewing and employment activity for semi-skilled and skilled labor during this period (Table 1).

About 60% of the applicants did not qualify for the job requirements and it was necessary for the Employment Department to continually contact the employment agencies in an endeavor to impress upon them the need for adhering to general requirements and qualifications in sending applicants for interview.

Poorer Men for Better Jobs

As the period of hiring activity and "recovery" progressed from October, 1935, to December, 1936, the general caliber of all the men hired, both skilled and production, dropped off with respect to education, mental alertness and ability to solve problems in spatial relations. This same trend is true of personnel ratings. At the same time the initial or "starting" labor grades of the men were increasing. In other words, as time went on the company was hiring less and less capable men, and placing them on higher and higher graded jobs. (See Chart I.)

It does not follow that these higher grade starting jobs should have been filled by upgrading very short service and inexperienced employees, because of the double training costs and interference with production involved.

These trends were also accompanied by a tendency to hire more "outsiders" as the period progressed.

All of these trends took an upward turn in January-March, 1937. These trends suggest the problem of systematic changes in the caliber of applicants, and in selection standards as a result of business upturns. If such changes are general characteristics of the present period of hiring activity, they suggest modifications of employment procedure, particularly the hiring of lower skilled workers, who are fully expected to require, and be capable of further training by the Company.

Requirements for skilled employees during the latter part of 1935 were completely filled by recalling former employees, while in 1936 it became necessary to hire 57 new employees or 19.7% of the total. This was increased to 98 or 33.6% of the total in 1937. Unquestionably, the shortage would have become more acute had our requirements for this class of help not declined after August, 1937.

Men Demand More Pay

It was our experience during the 1935-36-37 "build-up" that the difficulties encountered in obtaining mechanics to meet the requirements of tool building were more pronounced than in former years. This can be largely attributed to improved methods (e.g., splitting and grinding dies, hobbing of plastic molding dies, etc.) of constructing tools, as well as to the more complicated design of the tools them-

HIRING SKILLED WORKERS

CHART 1a. Intelligence Test Oris

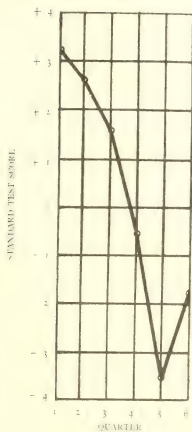
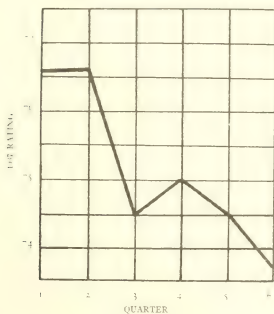


CHART 1b. Spatial Reasoning Test
Minnesota Paper Form 399a



CHART 1c. Trends in Personnel Ratings



The modern tendency in the design of tools is to replace the several tools, which were formerly necessary to perform the several operations incident to the fabrication of a piece part, with one tool so designed that it performs the required operations (blanking, forming, drawing, perforating, notching, etc.) all at once.

While this means that some of our mechanics (grinding machine operators, lathe hands, etc.) must become more highly skilled in their specialty, it also means that most of our toolmakers must have a greater over-all knowledge of their trade than before.

We found that in order to obtain highly specialized and competent mechanics from the outside, we had to offer higher wages than in former years. Each good mechanic understood that due to a shortage of help in his field, he could hold out for a better starting rate, especially if he qualified for the job in every other respect.

Upgrading Skilled Workers

WHAT SORT of results may be obtained by upgrading? Chart II on p. 13, shows the results obtained in 1937 by a company with an average working force of 1850 shop employees.

In the skilled labor grades (7-11) the average force was 411. 203 of these were obtained by hiring, and there were 75 upgrade promotions. All hiring was done in the lower skilled labor grades, where the labor market is least tight. *Under this plan, it was not found necessary to hire anyone for the two highest skilled labor grades.* Of 29 men in these highest grades 20 were obtained by promotion from lower grades.

The same thing is largely true of production workers (labor grades 1-6). With an average working force of 1439, 907 were hired in the lowest grades, and of these 757 were promoted during the year. It was thus found necessary to hire only 20 workers for the most skilled production jobs.

Internal Problems Created

WHILE such a program avoids the tremendous difficulties of obtaining the higher grades of skilled craft, and production workers from the general labor market, it can be well seen that it does create other knotty problems within the organization.

(1) A man leaving one job to go to another higher one, either in his own department or in another, must take some time to readjust himself. During this period his efficiency will be lower than normal. The enormous number of such promotions in this plant during one year would seemingly therefore have reduced the overall efficiency of the plant.

(2) It throws an extra burden on the supervisory force, for these promoted men will all require some additional instruction to fit them for their new duties, and also extra supervision in assigning and inspecting work.

(3) The supervisory force must be sold on the overall benefits of the program. For a supervisor with a good man in his department, capable of promotion, will have a natural tendency to want to keep the man in his department, rather than let him go to another department, and be replaced by a temporarily less efficient man promoted from some lower labor grade.

(4) Where a union is involved, and particularly where promotion is normally wholly or largely determined by seniority, difficult negotiations will be necessary to gain the union's acceptance of the plan.

PERSONNEL JOURNAL

NUMERICAL DISTRIBUTION OF AVERAGE WORKING

SCORES, ATTENDING 500 PRODUCTIONS

PERIOD 1947

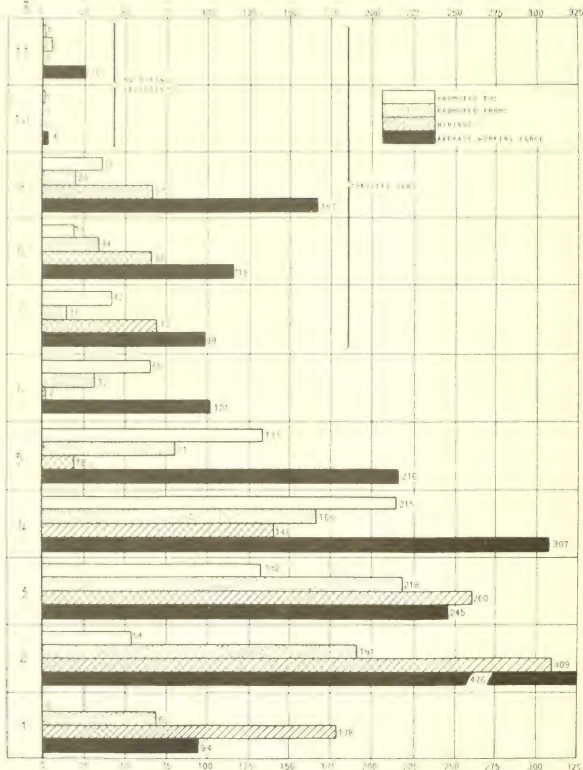


CHART II

The results shown for this company for the tight labor market year, 1937, grew out of a memorandum from the employment manager to the plant manager. A copy of this memorandum, which describes the operation of the plan, is here included.

Letter Starting Program

TO PLANT MANAGER

SEVERAL weeks back you requested me to line up a plan to provide for upgrading employees already on the payroll to higher rated jobs.

After considering several different plans, we at last decided on one which has been in force generally throughout the plant, although it has never been drawn up in a definite form to which all units might subscribe.

Because we had completed a job analysis of all occupations in one unit, we have used that organization in an endeavor to formulate a definite plan to insure that all new employees will come into the plant at the lower grades, and that openings in the higher grades will be filled by promoting from the lower grades.

Upgrading Chart Prepared

FOR this purpose we have drawn up a chart, along with a detailed statement, which for want of a better name we have termed, "upgrading chart". It has been designed for the purpose of assisting supervisors in the rather difficult task of upgrading their people. It serves the purpose of giving a definite picture of the promotional opportunities opening before employees, and reveals from what occupations employees can be promoted most logically, and from what occupations they can be promoted most logically to certain positions. (Chart not included.)

Blocks show each non-supervisory occupation in a department; and circles, supervisory occupations. Occupational grades, approved, tentative and proposed are included for each division.

The lines, with arrows pointing in the direction the line is supposed to travel, indicate the path of progress between each occupation. Lateral lines in many instances show inter-divisional moves and possibilities such as inducting inspection personnel from operating and production divisions.

In the lower levels all jobs are interchangeable. In this way flexibility is assured and workers are less likely to grow stagnant by remaining too long in the lower levels. In following out the plan it is intended that practically all new employees will come in at the lower levels and turnover should be confined almost exclusively to these lower grades.

As the chart is drawn up, there are no dead-end jobs. While we recognize that there are certain employees who will reach their proper level, and most likely be dead-ended at that particular point after a period, we believe it would be undesirable to indicate that condition on the chart, and that it is quite likely that some employees of this group may be transferred to other branches where it is pos-

sible that further progress may be made in a line of work for which they are better fitted.

SERIOUS consideration has been given also to the progress of women workers. We believe it is not only desirable to upgrade them on shop jobs, but also to effect shop to office transfers as special abilities of employees permit.

WE ARE not unmindful of the fact that not every employee working in a given occupation may be properly transferred to one of the occupations the path of progress indicates, and exceptions will arise.

Minimum Period on One Job

IN PRESENTING the plan, we are reminded that in times when there is an abnormal demand for labor it is likely that not all of the higher graded jobs can be filled from the lower grades, and that some employees should be expected to remain within lower grade occupations or in other words, in the jobs in which they started, for at least a minimum period of time. We believe this minimum period could best be set by the line organization, although of course it is conceivable that some unusual workers will come in from time to time, and it may be found desirable to promote them before the minimum time has expired.

Hiring Only in Lowest Grades

AS SAID in the beginning, the plan we are presenting is in general along the lines the various organizations are attempting to follow, and which we feel they have followed with a certain degree of success. For that reason we believe there should be no serious objection to accepting a plan of this sort as a definite policy, bearing in mind that its success will be indicated only by the amount of support it is given by the line organization.

Naturally if the plan is accepted, our Employment department will use the chart as a guide for filling requisitions received for labor. In other words, any requisitions for labor above the two lowest grades will not be acted upon by the Employment organization until they are satisfied that the labor required cannot be obtained from lower grades somewhere in the plant. We should expect the superintendent in charge of the organization entering the requisition to approve hiring a new employee from outside sources.

Should the plan be accepted, additional charts will be drawn up for the other departments in the plant so that inter-department rotation and upgrading may be worked out to insure that any requirement for labor above the two lowest grades, regardless of where it is in the plant, will be filled from the lower grades of any one of the departments; that is, assuming that the department entering the requisition have exhausted their possibilities of obtaining a man from a lower grade, the Employment organization will offer the promotional possibility to employees in the lower grades in some other unit.

EMPLOYMENT MANAGER.

Special Emergency Training

IS UPGRADE training feasible? Is it practical? What sort of results may be obtained from it? Does it ease the pressure in a tight labor market? These are legitimate questions. They are answered in the experience of one company.

In a period of expanding business, when it was found difficult to hire skilled workers, it set up a training program for its machine shop employees. They were trained in operation and care of machines, grinding of tools, setting up machines from blueprints, and in the use of simple and complicated measuring tools.

Program 98% Successful

OF 92 men in the shop, 70 were trained during 9 months. 69 benefitted so much by the training that they qualified to do more highly skilled work than they had previously, and were promoted accordingly.

The output of the shop increased 10%, the number of inspection rejections was reduced by 15%, and the skilled labor problem of the company was substantially eased.

Special Intensive Training

THIS company engaged in special intensive job training in two departments to meet needs for workers with greater skill. In one department trained detail makers and machine operators were required and unavailable in the outside market, so that a program of raising the level of skill was started in 1937 and continued until June 1938.

Selection of Trainees

COMPANY employees recommended by supervisors on the basis of performance within the department concerned.

Operation of the Plan

WITH a training manual developed by the training department, instructors specially trained were assigned 20 trainees each. These instructors were responsible for fully instructing the trainees in the operations involved in the next higher class of labor. They also coordinated classroom work with productive work, and worked closely with the supervisors of the trainees. As a trainee was qualified for the next higher class of work, his training was terminated and he was replaced by a new candidate from the department. The training period varied from 6 to 12 weeks, depending upon the base skill and ability of the trainee.

In another department where it was necessary to develop increased skill in machine operators, a similar plan was followed.

Resume of Results

THE training plan made available workers with increased skill to meet immediate and anticipated needs. In the Assembly Department 114 employees were placed in training during a 9-months period, and 65 upgradings were possible as a result. An interesting observation was that the quality of the department in which this training took place definitely and substantially improved as a result. This contributed to improved use of bench and machine tools.

The training activity created a tremendous interest among the trainees, who sought mechanical trades extension courses on their own time to secure knowledge related to their work. 107 of the 114 trainees enrolled for such courses. (See Table 1.)

TABLE 2
RESULTS IN TWO DEPARTMENTS

Assembly Department

Number on roll at time training began	135
Number trained during 9-months period	114
Number of employees promoted 1 class	49
Number of employees promoted 2 classes	8
Total number of employees promoted	57
Total number of promotions	65

Classroom training—2 hours weekly

Shop instruction—2 hours weekly

Total training period—6 to 12 weeks per class promotion

Trained in the use of simple and complicated bench tools, simple and complicated measuring tools, and theory of close fitting and lapping.

Approximately 10% of trainees selected for training failed to profit thereby, and the balance of the group were not promoted due to lack of openings at the higher level, brought about by a recession in business.

Machine Shop

Number on roll at time training began	92
Number trained during 9-months period	70
Number of employees promoted 1 class	64
Number of employees promoted 2 classes	4
Number of employees promoted 3 classes	1
Total number of employees promoted	69
Total number of promotions	75

10% reduction in inspection rejections observed following training. Output had increased approximately 10%.

Classroom training—2 hours weekly

Shop instruction—2 hours weekly

Total training period—6 to 12 weeks per class promotion

Trained in operation and care of machine, grinding of tools, setting up machine from blueprint and in the use of simple and complicated measuring tools.

Progression Training

MANY companies feel that, under the present and oncoming emergency defense situation, they can no longer rely solely upon formal apprentice training programs for their supply of highly skilled workers.

One company has developed, what it calls, a supplementary plan of "progression training". Under this plan employees, recommended by supervisors and tested as to mental capacity, are trained through a planned sequence of jobs. Each man moves along at a pace determined by his own ability to progress. Some, of course do not go right through to the most all-round skilled jobs, but showing special aptitudes and limitations, become specialists as, milling machine operators, grinders, machinists, heat treaters, etc.

Results Obtained

WHAT sort of results may be expected from such a plan? The company found that after it had been in operation twenty months of 109 men:

- 7 completed training as toolmakers
- 1 as an instrument maker
- 1 as a hand screw machine specialist
- 6 accepted supervisory positions
- 1 transferred out at his own request
- 11 failed to assimilate training

of the remaining 82, the expectations were that they would develop as follows:

- 17 toolmakers
- 20 lathe specialists
- 20 milling machine specialists
- 10 hand screw machine operators
- 10 automatic screw machine operators
- 5 grinder specialists
- 10 drill press specialists
- 10 punch press specialists

Supervisors Developed

SUCH a program obviously develops men at a slower pace than the emergency training program described above. Yet it has the advantage of increasing the amount of skill acquired to a much greater extent.

It will be noted also, that in this program, a proportion of the men developed supervisory ability, and were promoted to supervisory jobs.

The progression training program was designed to train semi skilled and skilled workers in higher levels of work by planned progression and upgrading in production shops to meet the needs of the company. With the knowledge that only a small ratio of apprentices who start training, even in highly specialized training shops, ever become toolmakers, the company planned to develop and use the maximum amount of skill that could be obtained by training present employees.

This plan allowed trainees to reach their maximum skill limitations even though they did not finally qualify as toolmakers. By careful selection and guidance, first-class machine operators can be trained from those who will not qualify as toolmakers on such machines as lathes, milling machines, grinders, hand and automatic screw machines, drill and punch presses.

Selection of Trainees

TO BE accepted a trainee must have been recommended by a shop supervisor based on quality and quantity of work and potentialities. An occupational test was given and followed by a training interview. From this group the candidates thought most likely to succeed were selected as trainees by the training department.

Operation of the Plan

THE training department assigned a representative to approximately 30 trainees, whose duty it was to arrange for all upgradings and transfers to pre-determined work assignments; to arrange for sale of tools to trainees; to contact shop supervisors or the instructor weekly to determine the progress of the trainee; to determine with shop supervisor or instructor if trainee was ready for new assignment; to determine classroom work to be assigned trainee; to interview trainees weekly to discuss progress and obtain reactions, which was considered as an aid in employee development; and to coordinate shop assignments with classroom work.

Each trainee was to be placed on suitable assignment in the shop at the lowest training point and to attend classroom instruction away from production for three hours weekly on company time; each shop supervisor, instructor, classroom instructor and the training department representative to analyze each trainee periodically to determine for what skilled mechanical trade each trainee was best suited.

Payment of Trainees

THE trainee received the same rate of pay he received for his usual shop work. Each assignment was evaluated in terms of units and these units divided into pay ranges. The hourly rate of each trainee was increased as soon as he had sufficient credits to place him in the next higher classification.

TABLE 3
TRAINING PROGRESSION

2ND GRADE START

- 12 Bench Hands failed
- 2 Saw Operators to Grade 3 Drill Press Operators
- 1 Bench Hand to Grade 3 Milling Machine Operators
- 2 Bench Hands to Grade 4 Detail Makers
- 2 Drill Press Operators to Grade 4 Drill Press Operators
- 2 Bench Hands to Grade 4 Lathe Operators
- 4 Drill Press Operators to Grade 5 Mill Operators
- 2 Punch Press to Grade 6 Lathe
- 3 Drill Press to Grade 6 Hand Screw Machine
- 1 Bench Hand to Grade 6 Detail Maker then to Supervisor

3RD GRADE START

- 1 Adjuster to Grade 4 Mill
- 2 Mill Operators to Grade 4 Mill
- 1 Lathe Operator to Grade 4 Operator
- 1 Lathe Operator to Grade 5 Operator

4TH GRADE START

- 2 Bench Hands to Grade 4 Drill
- 1 Counter to Grade 4 Grinder
- 2 Counters to Grade 4 Saw
- 3 Drill Press to Grade 4 Mill Operators
- 2 Saw Operators to Grade 4 Lathe Operators
- 6 Punch Press to Grade 5 Punch Press
- 5 Drill Press to Grade 5 Drill Press
- 2 Detail Makers to Grade 5 Lathe Operators
- 5 Detail Makers to Grade 6 Lathe
- 5 Detail Makers to Grade 6 Mill Operators
- 1 Mill Operator to Grade 6 Mill Operator
- 3 Punch Press Operator to Grade 6 Punch Press to Supervisor
- 1 Punch Press Operator to Grade 6 Hand Screw Machine Operator (Completed)

5TH GRADE START

- 3 Oilers to Grade 4 Detail Makers
- 2 Inspectors to Grade 5 Drill Press
- 4 Punch Press to Grade 5 Lathe
- 1 Drill Press to Grade 5 Mill
- 2 Machine Operators to Grade 6 Drill Press
- 1 Punch Press to Grade 6 Punch Press
- 1 Punch Press to Grade 6 Punch Press to Group Chief
- 1 Detail Maker to Grade 7 Detail Maker

6TH GRADE START

- 2 Assemblers to Grade 6 Drill Press
- 2 Lathe to Grade 6 Detail Makers
- 3 Mill Operator to Grade 6 Detail Makers
- 2 Detail Makers to Grade 7 Tool Makers (Completed)
- 1 Detail Maker to Grade 7 Instrument Maker (Completed)
- 1 Detail Maker to Grade 8 Tool Maker (Completed)
- 1 Punch Press to Grade 8 Punch Press to Supervisor

7TH GRADE START

- 2 Machinist to Grade 7 Machinist
- 2 Detail Makers to Grade 7 Detail Makers
- 4 Detail Makers on Jigs and Fixtures to Grade 8 Tool Makers (Completed)

Training Results

ONE hundred and nine trainees were placed on training between August 1936 and August 1937, and this training was suspended May 1938. At the termination we had 82 still on training; the other 27 were dropped for the following reasons: 7 completed training as toolmakers, 1 as an instrument maker, 1 as a hand screw machine specialist, 11 failed to assimilate training, 1 was transferred out at his own request, and 6 accepted supervisory positions in the shops.

Analysis shows that the 82 remaining trainees would develop into skilled mechanics as follows: 17 toolmakers, 20 lathe specialists, 20 milling machine specialists, 10 hand screw machine operators, 10 automatic screw machine operators, 5 grinder specialists, 10 each drill and punch press specialists. Progress charts on each individual in effect at the time training was suspended indicated that approximately 20 trainees would complete their training each year, some of each in the above work classifications (see Table 3).

Occupational Test Results

ONE hundred and nine trainees were selected for training with the following occupational test results: 23 above average, 63 average and 23 below average. In May 1938 when training was suspended, the training marks on these 109 trainees were as follows; of the 23 who were outstanding on tests 16 had above average marks and 7 had average marks; of the 63 who had average test marks 26 were outstanding, 35 were average and 2 below average; of the 23 below average on the test 14 had average training ratings and 9 below average.

Time Taken to Learn Jobs

IF SKILLED workers are trained by a company, how long does it take them to learn, so that their efficiency comes up to the standard set for the job?

There are four problems here:

If a fully skilled or qualified worker is hired from the outside, or transferred to another department or job within the plant, how long is it before he learns the fundamentals, or routines of the job, so that he can proceed without further detailed instruction and supervision?

After he has reached such a stage, he will still not be up to normal proficiency for the job, but as time goes on will, through practice and learning by himself, improve until the quality and quantity of his work is up to the standards set for the job. How long does this take?

These two learning times for different jobs at various levels of skill are shown, for one company in Table 4 that follows.

New and Upgraded Workers

IF A new inexperienced worker is hired, and specializes in a skilled occupation, how long will it take him to acquire full proficiency?

If a skilled worker is fully qualified in one labor grade, and is promoted to the next higher grade in the same occupation in the same plant, how long does it take him to meet the normal performance standards of his new job?

These learning or training periods are shown, for one company in Table 5 below.

Time to Secure Efficient Force

THESE figures were compiled by the company to get a more complete picture of the time required to secure an efficient working force, with its expected increase in defense and other business.

All available job analyses written on the skilled trades and machine occupations were studied and information on them concerning learning, or time to reach normal efficiency, tabulated. Where unavailable, this information was taken from training records, or obtained from supervisors who had men reporting to them in that line of work.

TABLE 4

TABLE OF SKILLED TRADES AND MACHINE OCCUPATIONS WITH LEARNING PERIOD, TIME REQUIRED TO REACH NORMAL PROFICIENCY, EXPERIENCE REQUIRED AND EXPERIENCE PREFERRED

	LEARNING PERIOD (Percentage of time devoted to the trade)		EXPERIENCE (Percentage of experience preferred)	
	Required	Preferred	Required	Preferred in months
CLASS 2				
Drill Press Operator, Light	4	12		2
CLASS 3				
Drill Press Oper., Light	4	8	2	6
Milling Mach. Oper., Simple Work	8	12		6
Polisher & Buffer	8	12		3
CLASS 4				
Box Maker	6	24	3	12
Buffer, Metal	8	24	6	12
Spec. Mach. Operator	4	24		12
Detail Maker	6	24	8	12
Drill Press Oper., Heavy	4	24	12	24
Drill Press Oper., Light	4	24	12	24
Grinder, Rough	4	12	6	12
Heading Mach. Oper.	8	24	6	12
Lathe, Plain Trades	8	24		6
Milling Mach. Oper., Prod.	8	12	6	12
Milling Mach. Oper., Simple Work	8	12	4	6
Nailing Machine Operator	4	8	3	6
Painter, Metal	4	8	3	6
Polisher and Buffer, Rubber	4	6	6	12
Punch Press Operator	4	12	9	18
Sandblast Operator	4	12		12
Sander, Hand	4	12	4	12
Sheet Metal Worker, Prod.	6	24	3	6
Shear Oper., Power	4	16	6	12
Welder, Electric Spot	8	24	6	12
Wood Finisher	4	12	12	24
CLASS 5				
Buffer, Metal	8	24	24	18*
Spec. Mach. Operator...	4	12	12	24
Drill Press Operator, Heavy	8	24	18	24
Drill Press Operator, Light	6	24	18	24
Glue Press Operator	4	12	12	18
Grinder, Rough	4	12	18	24
Hand Screw Machine Operator.....	4	12	12	18
Joint Operator...	4	14	12	18
Layout Man	12	36	24	30
Milling Mach. Oper., Production	6	24	18	24
Milling Mach. Oper., Simple Work	6	24	18	24
Plater, Metal Finishes	12	36	24	36
Punch Press Operator.....	4	24	12	18

TABLE 4—Continued

OCCUPATION	CLASS 5		CLASS 6	
	(A) PERCENTAGE IN WEEK FOR EXPERIENCED WORKERS	(B) ANNUAL PRODUCE IN VALUE PER HOUR (A)	REQUIREMENTS	REMARKS
Class 5—Continued				
Sander, Hand	8	18	18	24
Saw Operator (Metal)	4	12	12	18
Saw Filer	4	12	36	48
Sawyer, Rip	4	16	18	24
Sawyer, Swing	4	16	18	24
Sawyer, Trim	4	16	18	24
Shaper Operator, Wood	4	20	12	18
Shear Operator, Power	4	12	12	18
Sheet Metal Worker, Plant, Simple Work	8	24	18	24
Sprayer, Metal...	6	24	24	36
Sprayer, Wood.....	8	24	12	18
Welder, Electric Spot.....	4	12	12	24

Class 6

Blacksmith, General	8	24	36	48
Buffer, Metal.....	16	24	36	24 ^b
Cabinet Maker	16	24	36	48
Spec. Mach. Operator.....	4	16	24	30
Detail Maker	16	32	24	12 Co. exp.
Ext. Press Oper.....	8	16	30 Co. exp.	36 " "
Hand Screw Machine Operator...	4	10	24	36
Lathe Oper., Bench or Eng.-Prod..	4	10	24	36
Machine Setter, Punch Press.....	16	24	30	36
Machine Setter, Metal and App.	16	24	30	36
Milling Mach. Oper., Precision.	8	18	24	36
Milling Mach. Oper., Production.	8	18	24	36
Plater, Metal Finishes	16	32	36	36 Co. exp.
Punch Press Operator	4	24	24	36 ^c
Sander, Machine.....	8	16	18	24
Saw Operator, Metal.....	4	12	24	36
Sawyer, Rip.....	4	12	24	36
Sawyer, Trim.....	8	24	24	36
Shaper Operator, Wood.....	4	24	18	24
Sprayer, Metal	6	18	36	60
Sprayer, Wood	8	24	18	24
Wood Finisher, All Around	4	12	24	36
Wood Finisher, Varnisher.....	4	12	24	36

Class 7

Buffer (Polisher) Metal.	20	28	48	42 Co. exp.
Cabinet Maker	16	24	36	48
Carpenter...	8	16	30	36
Detail Maker	10	16	36	36 Co. exp.
Die Maker.....	14	24	36	12* Co. exp.
Electrician.....	12	24	12 ^d	12 ^e " "
Grinding Mach. Oper.—Precision.	6	24	24	24 " "
Grinding Mach. Oper.—Cutter.....	6	24	24	24 " "
Hand Screw Machine Operator.....	4	12	30	36

TABLE 4—Continued

OCCUPATION	(A) LEARNING TIME IN WEEKS FOR SUPERVISOR WORKERS	(B) NORMAL PROTEC- TION IN WEEKS IN LEARN. (A)	PREVIOUS EXPERIENCE	
			Required in months	Preferred in months
Class 7—Continued				
Instrument Maker	10	24	36	48
Lathe Operator, Turret, Bench or Engine— Precision	4	8	30	24 Co. exp.
Lathe Oper., Auto. Wood Turning	6	12	30	24 " "
Layout Man	10	24	36	48
Machine Setter, Punch Press	8	16	36	36 12 Co.
Machine Setter, Metal and App.	8	16	36	36 " "
Mach. Setter, Contact Wld. Mach.	4	8	36	36 " "
Machinist (Gen.—Plant Repairman).....	16	32	48	48 Co. exp.
Mason & Cement Fin., Cement Fin.	4	8	36	48
Millwright	16	32	24	36
Painter, General	4	8	24	36
Plumber (pipefitter)....	12	16	24	36
Sawyer, Swing	8	16	36	36 Co. exp.
Screw Mach. Oper., Auto.....	4	8	24	24 12 Co.
Sheet Metal Worker, Plant, All Around..	8	20	24	36
Sheet Metal Worker, Plant, Simple Work	8	16	24	36
Sign Letterer	4	16	12	18
Toolmaker.....	14	24	12 [‡]	24 [‡]
Welder, Elec. Arc & Acetylene	8	16	24	36
Class 8				
Blacksmith, General	8	16	48	48 incl. 12 Co.
Cabinet Maker	16	24	48	48 " " "
Carpenter.....	8	16	42	48
Detail Maker	8	16	48	48 " " "
Electrician.....	12	24	48	48 Co. exp.
Grind. Mach. Oper., Precision..	10	24	36	36 " "
Lathe Oper., Turret, Bench or Engine— Precision	6	12	36	36 " "
Locksmith.....	4	6	24	36
Machinist (Gen.—Plant Repairman).	12	36	48	48
Mason & Cement Fin., Bricklayer	4	8	48	48 Co. exp.
Mason & Cement Fin., Cement Fin.	4	8	48	48 " "
Milling Mach. Oper.—Precision	6	12	36	48
Millwright	16	32	36	48
Plumber (Pipefitter).	16	32	36	36 Maint.
Sawyer, Trim	8	16	36	36
Screw Mach. Oper., Automatic	6	12	36	48
Sheet Metal Worker—Production	8	16	48	48
Sheet Metal Worker—Plant All Around	16	32	48	48
Welder, Elec. Arc and Acetylene	8	16	36	48
Class 9				
Cabinet Maker	20	32	60	60
Detail Maker	6	12	60	24 Co. exp.
Die Maker, Maker and Repairer	14	24	24 [‡]	36 [‡] incl. 12 Co.
Electrician..	12	24	60	60 Co. exp.

TIME TAKEN TO LEARN JOBS

TABLE 4—*Continued*

OCCUPATION	CLASS			
	A	B	C	D
	18 months	24 months	36 months	48 months
Class 9— <i>Continued</i>				
Engineer.....	10	—	48	— [‡]
Grind. Mach. Oper., Precision.....	6	1	10	48
Instrument Maker.....	12	36	60	—
Lathe Oper., Tur., Bench or Eng. Prec..	6	2	48	28 Co. exp.
Mach. Setter, Auto. or Hand Screw...	8	2	10	48
Machinist, (Gen.-Plant Repairman)....	6	10	—	60 incl. 12 Co
Milling Mach. Oper.—Precision.....	6	12	48	60
Millwright.....	24	12	48	60
Pattern Maker, Wood	8	10	24 [†]	36 [‡]
Plumber (Pipefitter)...	10	32	48	48
Toolmaker.....	14	24	24 [†]	36 [‡]
Vernier Machine Operator.....	0	2	—	—
Class 10				
Grinding Mach. Oper.—Precision	6	24	48	60
Toolmaker.....	14	24	36 [†]	48 [‡]
Class 11				
Die Maker, Maker and Repairer	14	24	84	84
Gauge Maker	12	24	84	84 incl. 12
Heat Treater, Tools	4	8	72	72 Co. exp.
Toolmaker.....	14	24	84	84
Not Classed				
Mach. Setter, Auto. or Hand Screw	8	20	72	72
Mach. Setter, Metal and Apparatus.....	8	20	60	60
Mach. Setter, Cont. Weld. Machine.....	4	12	72	72 incl. 12
Mach. Setter, Wood Working.....	4	12	66	66 Co. exp.
Toolmaker.....	14	24	84	84

* Preferred 18 months in specialized type of buffing.

† Preferred specialized type.

‡ Plus apprenticeship.

§ Must have State refrigeration and stationary engineering license.

TABLE 5

STANDARD WEEKS FOR THE MECHANICAL TRADES (LEAD TRAINING DATA)

A. "Time" learning periods represent the total time required for an *inexperienced* operator to attain the job performance standard if he specializes in that occupation.B. "Time" learning periods represent the number of weeks required for an operator *experienced* in the most favored class to meet the performance standards of job shown.

OCCUPATION	CLASS	WEEKS	
		A	B
Lathe Operator	1	4	3
	4	10	8
	5	14	6
	6	20	8
	7	24	6
	8	28	6
Milling Machine Operator	1	3	3
	3	4	8
	4	10	8
	5	20	6
	6	24	8
	8	30	6
Drill Press Operator	2	4	6
	3	8	4
	4	10	4
	5	12	4
	8	14	4
Grinding Machine Operator	2	3	3
	3	4	3
	4	6	4
	5	8	4
	6	14	8
	7	18	6
	8	26	10
	9	30	6
Punch Press Operator..	10	34	6
	2	4	3
	3	5	3
	4	7	4
	5	9	4
	6	11	4
Saw Operator..	7	13	4
	3	3	3
	4	4	3
	5	3	3
	6	6	3

TABLE 5 - *Continued*

OCCUPATION	CLASS	WEEKS	
		A	B
Shear Operator	3	3	3
	4	4	4
	5	5	5
Hand Screw Machine Operator	3	3	3
	4	4	4
	5	7	4
	6	9	4
	7	11	4
Detail Maker	4	60	11
	5	133	11
	7	183	11
	9	279	6
Auto. Screw Machine Operator.....	4	6	6
	5	10	7
	6	14	9
	7	18	11
	8	22	16
Engraving Machine Operator.....	9	26	6
	3	4	4
	5	8	6
Jig Borer Operator.....	6		
	8		
Planer Operator.....	9		
	6	6	6
Shaper Operator	9	10	6
	6	6	6
	8	10	6
Machinist	9	14	6
	6	64	9
	7	139	8
	8	213	14
	9	303	8
Die Maker.....	10	313	8
	7	229	14
	9	333	14
	10	391	14
Instrument Maker.....	11	421	14
	6	109	10
	7	248	10
	9	275	10

PERSONNEL JOURNAL

TABLE 5—*Continued*

OCCUPATION	CLASS	WEEKS	
		A	B
Carpenter	7	229	14
	9	358	14
	10	393	14
	11	424	14
Toolmaker	7	229	14
	9	355	14
	10	393	14
	11	424	14

Selecting Men to be Trained

THE training periods for skilled workers recorded above are average periods. Many of these, and other companies, require that before a man is given training to lift him from his present to a higher labor grade, he must show that he has the basic trade knowledge, and the capacity to benefit by the training.

This is sound, for it is a waste of time on the part of the training department, and of the man, and a useless tying up of much needed plant equipment to attempt to upgrade a man who does not have the ability or brains to qualify for the higher skilled job anyway.

Only 35% Helpers Good for Promotion

THERE is described below the experience of one company in selecting electrical helpers for training to journeyman grade. It found that only 35% of these helpers looked as if they would ever get to fully skilled status, no matter how much training they were given.

Four factors were considered in deciding upon the men who had a good chance of succeeding.

- (1) Merit rating by present supervisors
- (2) Length of experience with the company.
- (3) Knowledge of their trade or job. This was judged on the basis of their answers to trade questions relating to their present jobs. It was felt that if they had not, after years of experience in their jobs, been sufficiently ambitious or intelligent to learn all they could about them, then they were poor prospects for training for higher jobs.

Practical Trade Questions

SUCH trade questions are very practical ones, as may be seen from the following four, which will be used, possibly in a modified form, in the next step the company is going to take in selecting machine shop men for upgrading.

(a) Is a flat plate $\frac{1}{2}$ " x 16" x 36" ordinarily held on the planer for surfacing with (1) straight clamps, (2) planer jacks, (3) a planer vise, (4) poppets and toe dogs?

(b) If you are to turn an included angle of 30 degrees on the end of a piece of stock held in a lathe chuck, do you swing the handle end of the compound rest, (1) 30 degrees to the left, (2) 30 degrees to the right, (3) 60 degrees to the left, (4) 75 degrees to the left?

(2) Is a miller, (3) a concave curve, (2) a type of gauge, (3) the point of balance of a tool, (4) a convex curve.

(d) Can a spiral (helical) square cornered keyway be cut in a shaft on a miller with a (1) side mill, (2) slitting saw, (3) woodruff keyway cutter, (4) end mill?

Such trade questions, many of which have been prepared by the Extension Division of Purdue University, and the Research Division of the Unemployment Insurance Division of the Federal Security Agency, Washington, D. C., are quite suitable for use by master mechanics and machine shop foremen in aiding in the selection of men for upgrade training, or even for hiring new skilled workers.

(4) The last, and most important factor, taken into consideration was the intelligence of skilled workers who might be capable of improving their skill through training. This was determined through intelligence tests.

Negotiations with Union

THIS program ran into difficulty because the union felt that promotion from helper to journeyman classification should be based on seniority. But the examinations showed plainly that many men, with years of experience on the job, had not bothered to learn all they could about it, or were incapable of learning more, and so could not possibly be promoted or trained for promotion.

Under the emergency conditions prevailing in the industry, and the fact that an absence of ten skilled workers means that 100 semi- and unskilled workers cannot be hired, because there are not tools and properly maintained machines for them to operate, the union finally dropped its opposition to the plan.

Personnel Manager's Letter Starts Program

October, 1939

To: Mr. "X", Division Superintendent
From: Mr. "Y", Personnel Manager
Subject: Training Electrical Helpers

Following your instructions, during the past week we have given qualifying tests to sixty-four members of your electrical maintenance department for the purpose of selecting members for a training group in electricity. The tests used were the Otis Advanced Self Administering Test of Mental Ability, and the General Electrical Knowledge Test prepared by Mr. "Z" and others in this area under the direction of the State University.

In arriving at a composite test ranking for these employees, who were given the qualifying tests, the following arbitrary weights were given to each of the factors considered:

Otis Intelligence.....	40%
General Electrical.....	30%
Experience.....	20%
Merit Rating.....	10%
	100%

We realize that the above weights may be open to question, but we were of the opinion that it was necessary to establish standards in line with the purposes of the tests. Thus, we considered intelligence of greatest importance in determining those who have the capacity to justify training.

Recommendations

FIRST: We are of the opinion that only twenty-three of the group tested have the mental capacity to effectively receive training. Consequently, we recommend that at least a trial group be restricted to that number at this time.

Second: We believe that the group percentile rankings (shown on the attached pages) will be helpful to the Superintendent of Electrical Maintenance from an Industrial Relations viewpoint in future questions of promotions, demotions, rates, or job assignments.

Third: We would recommend that the same procedure should be followed in testing lower rated machinists for instruction groups.

Fourth: In analyzing the information at hand as revealed in the test results, the following pertinent information will be of interest to your supervisors.

Night School Students Best

EMployees who have pursued some night school studies rated eighty-two percent (82%) higher on the General Electrical Knowledge Test than those who, according to our records, have made no attempts to improve themselves by outside study.

The average Mental Age computed from the Otis Test of Mental Ability was 13.0 years. Since the average Mental Age of an adult group such as this is normally about 15 years of age, this group was slightly below normal.

There was a correlation of $-.065$ between test results on General Electrical Knowledge and the total Merit Rating score. This exceedingly small correlation seems to indicate no relationship at all between these two factors. Either the raters are not accurately rating the man on the actual knowledge of his job, or, the test used did not sufficiently measure the man's knowledge of electrical facts.

There was a correlation of $+.40$ between the foreman's overall Merit Rating and Intelligence as measured by the Otis Test. A correlation of this magnitude indicates a slight, but probably statistically significant relationship between these two factors. In other words, as a rule a man with more mental ability is usually rated slightly higher than a man with a lower mental ability.

Experience Does Not Guarantee Job Knowledge

THERE was a correlation of $+.023$ between Experience and General Electrical Knowledge as revealed by the test results. Here again the exceedingly low correlation probably indicates no relationship between these two factors. In

other words, by merely being exposed to electrical work over a period of years the worker is not absorbing the knowledge that should be required of him in order to obtain and fulfill a job requiring more knowledge and skill. This low relationship shows more clearly the specific necessity of a planned training program for workers of this type.

The results of these qualitative tests indicate a decided need for a planned training program of some nature. We believe that with the right type of training, the twenty-three men recommended have the mental capacity and basic knowledge to carry through a course of the type outlined to you previously in our memorandum of September.

Technical Scoring Method

For those who are interested in the technique used in arriving at a final composite score, which includes the four factors, there is given below a note describing the method used.

Each man is ranked according to his relationship to the rest of the group according to his scores on the qualifying tests. Since it would be impossible to use the raw or actual scores for comparative work, it was necessary to find and use the so called "Z" score. This means a score in terms of standard deviations from the arithmetic mean or average. By the use of the "Z" score, the individual results on all the qualifying factors were placed in common units and on a common basis.

In order to emphasize certain of the qualifying factors which we considered slightly more essential to the welfare of the group, the "Z" scores were then weighted by multiplying them by our previously determined weights. Then, these weighted "Z" scores were totaled and percentile ranking determined for each individual. The percentile rank means, in ordinary terms, the relative position of one individual to the rest of the group. Thus, a percentile rank of 80 would mean that 80% of the group did not obtain as high a composite score as this individual did, and 20% obtained higher composite scores.

Skilled Labor Supply Inventory

THE National Defense Commission recommends that companies take an inventory of their working force, so that they may be certain that they know the skills and potentialities of their employees, and can train and upgrade them accordingly. This is a major undertaking.

One company did this late in 1939, in anticipation of a 50% increase in business in 1940. Their experience is reported here, and shows what must be done.

Information to Be Gathered

ESTIMATES must be obtained from the production department as to physical output in different products. This must be related to tool building and maintenance; to the present skills in the plant; to the potentialities of employees for promotion, with or without further training; to graduating apprentices; to learning periods, and the productivity of learners and trainees; to induction periods, or time for hired and transferred employees to reach normal proficiency; to number of laid off employees who may be expected to return to the company; to the age distribution of employees; to the number of semi-skilled workers, who seem to have the capacity for promotion into skilled jobs.

And finally all these factors must be related together, to obtain final estimate of the numbers of employees to be promoted, trained, hired and recalled, for each occupation, each month.

Conferences with Line Organization

THE material here presented illustrates these methods as attempted in a company. It is evident that the correlation of the various factors must have been accomplished in conferences of the line organization with the personnel department. These conferences are not reported here, as they would serve to identify the company, and expose its private business information.

The material presented, however, should serve as a useful guide to any other company, wishing to make such a survey of its own situation, in whole or in part.

Labor Requirements Survey

STUDIES which were made in past years to determine needs for production and skilled workers in an expanding business period had proved of such value in meeting the requirements, that a comprehensive study was undertaken in 1939 to

determine the requirements of an assumed increase in production of 50% which was considered improbable based on inquiries for and estimates of the probable demand for the company's products. This study was for the purpose of determining—

(1) Number of workers by occupations available within the plant who had been transferred or downgraded and already possessed skills for higher grade work.

(2) Name and what employees in the plant had partially developed skills as a result of rotational or progression training.

(3) Number and names of employees laid off who had had experience in some of the line skills or work or had developed skills as a result of rotational or progression training.

(4) Training needed to make best use of available skills.

(5) Possible employment or reemployment problems in view of the possible tightening of the labor situation.

For the purpose of determining number of employees within the plant qualified with little or no training to return to higher skilled occupations, the experience records of 1487 employees in "major" occupations as of October 1937 were reviewed. Estimates were prepared as to the number of employees that would have to be recalled or hired, to show the number and kind by occupations, and pertinent information as to specific employees who might be rehired to meet specific needs. Data was accumulated as to training periods for training use and for information of line organizations.

While the data is intended to focus attention primarily on skilled and semi-skilled labor, there is included information relating to all direct labor occupations for male workers, to conform with a policy of training employees for progression in the organization.

Final Estimates

THE final outcome of this survey resulted in a table, of which that given below is a representative part (see Table 6).

25% of Employees Found Promotable

THE inventory also showed that 25% of employees on the payroll were capable of going into higher skilled jobs, either straight away, or after further specific training.

Also the number of laid off employees, who might be recalled to their former skilled jobs, was determined. The rehiring of these employees, rather than completely new ones, would considerably increase the rate at which the plant would attain full productivity.

A summary of the results of this aspect of the inventory is given below.

Summary of Inventory Considerable Job Opportunities, Male Hourly Shop Occupations 12-1-39
(Clerical Occupations and Supervisors Not Included)

Number of Male Hourly Shop Occupations considered (Clerical occupations and supervisors not included).....	262
Number of possible employees for these occupations.....	225

SKILLED LABOR SUPPLY INVENTORY

Number of these employees who were demoted to a lower level in same occupation due to lack of work since July 1, 1937. These employees are to be returned to their higher level jobs as openings occur.....	206 (9%)
Number of others of these employees who are capable of assuming greater responsibilities without any further training or experience (Supervisory recommendations)....	197
Number of others of these employees who will be capable of assuming greater responsibilities after further specific training or experience. (Supervisory recommendations).....	170
Number of individuals who worked on these occupations but were laid off due to lack of work. These employees are candidates for rehiring when openings occur.....	Calculated but not given

TABLE 6

ESTIMATED PERSONNEL REQUIREMENTS—BASED ON ASSUMED 50% INCREASE IN PRODUCTION
(This type of estimate was made for all occupations in the plant)

OCCUPATION	12/1/39 PRESENT FORCE	1940 NO. TO BE HIRED EACH MONTH						TOTAL
		Jan.	Feb.	Mar.	Apr.	May	June	
Bench Hand.....	201	19	13	11	19	6	4	
Cabinet Maker.....	12							
Carpenter.....	7	1						
Crane Operator.....	5	1		1				
Die Maker.....	19		1		1			
Electrician.....	58	8	1	1	3	1		
Gardener.....	2				2			
Gauge Maker.....	1							
Instrument Maker.....	16			2	2			
Janitor.....	51	2	3	5				
Layout Operator.....	25	3	1	2	2	1		
Machine Oper.—Drill Press.....	74	10	7	5	7			
Machine Oper.—Lathe.....	28	4	3	2		1		
Machine Oper.—Punch Press.....	58	7	4	2	1	1		
Machine Oper.—Screw.....	21	1	2	3	2			
Machinist.....	60	7	4	1	1			
Machine Setter.....	30	4		2	2			
Millwright.....	33	4		1	1			
Painter.....	10		2	1	1			
Pipefitter.....	25		1		1			
Restaurant Hand.....	35		2	2	2			
Stockkeeper.....	42	2	1	3	3	2	1	
Tool Maker.....	58			1	4	1	1	
Welder.....	26	1	2	1				
Totals (For all Occupations):								
Men.....	2238	260	136	131	135	59	10	2954
Women.....	549	61	33	29	40		3	728
Grand Total.....	2787	321	169	160	174	40	13	3682
Increase.....								895

Supervisors Recommend Promotable Workers

THE development of these figures was attained through personnel records, and recommendations of the supervisory organization (see Table 7).

TABLE 8
PLACEMENT BY OCCUPATIONS AND LABOR GRADES

OCCUPATIONAL CATEGORIZATION	NUMBER ON JOB	NUMBER ON ROLL	3. (3) CURRENT EMPLOYEES WHO RECEIVED RECOMMENDATION			4 EMPLOYEES WHOSE GRADE INCREASED FROM OCCUPATION	5 LAID OFF EMPLOYEES	(6) TO BE HIRED FROM OUTSIDE MARKET
			1	2	3			
Welder, Iron & Steel	7	0	0	0	0	0	1	
	8	2	0	2	0	0	4	
	8	3	0	0	0	0	0	
Total		18	0	2	0	0	5	
Lathe Operator	7	0	0	1	1	0	9	
	8	4	0	0	0	1	6	
	8	0	0	0	0	0	1	
	9	3	0	0	0	0	1	
Total		17	0	1	1	1	17	
Tester, Electrical	7	2	0	1	1	0	0	
	8	10	2	6	2	0	0	
Total		18	2	7	3	0	0	
Electrician	7	3	0	1	1	0	38	(Calculated but not shown)
	8	18	3	2	2	0	23	
	9	24	4	1	2	0	6	
Total		47	7	4	5	0	67	
Millwright	7	7	0	0	0	0	22	
	8	18	2	0	0	0	25	
	9	8	2	0	0	0	1	
Total		33	4	0	0	0	48	
Drill Maker	4	1	1	0	0	0	4	
	5	0	0	0	0	0	1	
	6	7	1	1	2	0	16	
	7	9	0	2	1	2	25	
	9	19	1	2	2	0	10	
Total		36	3	3	3	2	56	

Personnel records showed by occupations, labor grades and merit ratings the men who had been demoted during the business recess of 1938, and who were still on the payroll of the company (Column 4). Personnel records also showed by

occupations, labor grades and merit ratings the men who had been laid off (Column 5).

The supervisors were asked to supplement this information by making "potentiality recommendations" (Column 3) as to: (1) Those employees who were qualified to return to their former higher level jobs. (2) Those capable of assuming greater responsibilities with no further training or experience. (These employees are immediate candidates for promotion to skilled jobs not previously held with the company.) (3) Those capable of assuming greater responsibilities after further training and experience.

Taking all these factors into consideration, and knowing from the production department the number of men required in each occupation, by labor grade, it was possible to determine the number of men in each classification that would have to be hired from the outside labor market.

The personnel department then made an analysis of the sources from which it obtained employees in the business pick-up of 1935-37, in a tight skilled labor market. The results of this analysis are shown in Table 8 below, but may be summarized here as follows:

931 skilled workers were hired.
 Of these 220 were former employees and 711 new workers.
 574 were drawn from the ranks of the unemployed.
 330 were employed in the local area and left their present jobs.
 27 were employed outside the area, and left their jobs and moved.
 Only 10 were obtained through advertizing.
 95 were obtained through public employment agencies.
 245 were obtained through personal recommendations of present employees.
 552 were fully experienced when hired.
 269 were partially experienced and required further training.
 119 had no experience for the job hired for, and had to be trained.
 417 received a higher rate of pay with the company than they had previously been getting.
 352 took a reduction in pay to come to work for the company.

Company Can Better Hiring Methods

As a result of this analysis the company feels that it now knows better how to obtain skilled workers. It feels that advertising is almost useless, as is out-of-town recruiting. It feels that public employment agencies, such as the State Employment Service is not yet sufficiently reliable as a source.

It feels that in the main it must rely on its own employment office to keep more closely in touch with former employees, to build up the reputation of the company in the community, and to develop means of getting into contact with skilled unemployed workers in the local area, through church groups, social agencies, etc.

Personnel Procedures

THE results obtained in this labor requirements survey, herein described, have in a large measure been made possible through the use of basic personnel procedures. Recognizing the importance of having accurate estimates of personnel required for fluctuating periods of the business, and other adequate appraisals to aid in moving and training employees under these varying conditions, led supervisors in the organization to suggest procedures which would permit objective and fair judgments in connection with the development and placement of employees.

As a result of this supervisory interest, particular emphasis was given in 1935, by both the personnel and line organizations, to such procedures as job analysis, employee inventory, merit rating, job families and in the forecasting of personnel requirements. A short explanation of these procedures seems appropriate, as a part of this labor requirements survey, recognizing, however, that these procedures are not new, and are found in many other industrial organizations.

Job Analysis

ACCURATE and adequate information relating to job and worker requirements is a basic need in carrying out any personnel program effectively. Detailed job analysis has therefore been used in employment work, testing, training and upgrading. Such job analysis information was obtained on jobs, in all organizations, in order to provide a base for personnel action on a plant-wide basis. With trained analysts, and through the use of a plant manual, a uniform approach and evaluation is made of all jobs in the plant.

These analyses supply basic information as to job duties; job requirements in terms of working conditions, hazards, learning period; work requirements in terms of preferred age, experience, practical knowledge, vocational abilities and personal qualities.

Employee Inventory

IT HAS seemed to us that an employee inventory to record an employee's experience, education, types of experience and job preferences, is a necessary requirement in carrying out a well-rounded personnel program that has systematic employee development as one of its important factors.

This information is obtained through supervisors, supplemented by an interview by them with employees, recorded on an inventory form, and the supervisor is required to make a definite recommendation as to the steps that should be taken to develop the employee beyond his present place in the organization.

Merit Rating

MERIT ratings, which seek to objectively determine the performance standards of the individual employee, and incidentally include specified judgment

values by supervisors, are also considered essential in providing the opportunities to those who best merit them. The merit rating plan used limits, in so far as possible, subjective judgments, and appraisals are made as objectively as possible.

Job Families

TO BEST utilize transferable skills possessed by employees, job analyses information is used in an effort to relate associated jobs based on their skill and knowledge requirement patterns. It is felt that present tests, and others which may be developed, make it possible to measure employee qualifications, not for a single occupation, but for a family of jobs with similar characteristics, as an aid to supervisory judgment in determining potentialities of employees.

Forecast of Personnel Requirements

IN FORECASTING personnel requirements, information of value in supervisory training, and in management discussions, is provided which enables the management and the line organization to better anticipate problems that will have to be met as business expands, and to organize training programs to meet those needs, without serious interruption of work schedules, even though they involve transfer of employees from one class of work to another.

It is our feeling that the use of these procedures has made it possible to consider more objectively the individuals, and their qualifications, on a plant-wide basis, has also made for more effective placement, and facilitated upgrade training beyond that which could otherwise have been expected.

The study, here reported, of ways of obtaining sufficient skilled workers for defense industries is contained in the October and November issues of the Personnel Journal.

Part II, (November 1940) will deal with:

PLACEMENT BULLETIN FOR PLANT
IMPROVED TOOLROOM PRACTICES
SPEEDING UP TRAINING
TRAINING ON THE JOB
APPRENTICE TRAINING COSTS
WRIGHT AERONAUTICAL PLAN
DOUBLING THE LABOR SUPPLY
OUTPUT PER SKILLED WORKER INCREASED
RECOMMENDATIONS
NATIONAL DEFENSE COMMISSION PLANS

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Placement Bulletin for Plant

THE National Defense Commission recommends that, in order to make the most effective use of skilled workers in a large plant, with fluctuating loads in different departments, it should set up a central placement service. There is illustrated below a method by which such a placement service can supplement the work of the personnel department in gearing the labor supply in the plant to the labor needs of the organization.

Planning for Most Effective Use of Workers

A large plant has made effective use, in its centralized placement service, of a personnel requirements bulletin in obtaining plant-wide and consistent consideration of qualified candidates for promotion and placement. This bulletin is issued weekly, and supplemented daily, to show the labor situation in the plant in terms of job openings and surplus employees, actual and currently anticipated. The data is obtained by placement men assigned to different sections of the organization. They have the responsibility of keeping in close touch, through the line organization with the load, labor requirements and qualifications of employees in departments to which assigned. (There is one placement man to each 2500 employees.)

These placement men, by close collaboration, obtain the most effective use of the personnel, particularly skilled workers, through coordinated plant-wide movement of employees, to meet fluctuating work requirements. This plan avoids delays in effecting reassignments, and makes for efficient placement of both production and skilled workers.

A sample bulletin for one week is shown below.

PLACEMENT BULLETIN FOR PLANT

December, 1939

PLACEMENT BULLETIN DECEMBER—P.M.

VACANCIES

No. of Vacancies	Occupation	Grade	Rate of Pay	Dept.
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REQUISITIONS HELD IN PLACEMENT DEPARTMENT

Manufacturing Departments

5	Jr. Mechanics			
1	Shop Instructor			
1	Bench Hand			
2	Bench Hands			
1	Messenger			
13	Total number of unfilled requisitions for Men.			
1	Stenographer		Wkly.	
1	Total number of unfilled requisitions for Women.			

OTHER OPENINGS AVAILABLE

Manufacturing Departments

1	Draftsman		Wkly.	
2	Stock Service Clerks		"	
1	Bench Hand (Assem.)			
1	Trucker			
1	Mill. Mach. Oper.			
1	Toolkeeper			
1	Jr. Mechanic			
1	Counter			
9	Total number of openings available for Men.			
1	Typist		Wkly.	
1	Stenographer		"	
2	Total number of openings available for Women.			

SURPLUS HELP

Manufacturing Departments

No. of Excess	Occupation	Rate of Pay	Dept.	Date Developed	Date Available
1	Prod. Service Clerk			12-04-39	Now
1	" " "			12-04-39	"
1	" " "			12-04-39	"
1	Insp. Engineer			12-04-39	"
1	Meter Repairman			11-30-39	"
1	Planning Engineer			11-29-39	"
1	Insp. Engineer			11-29-39	"
1	Test App. Repairman			11-29-39	"
1	" " "			11-29-39	"
9	Total number of surplus for Shop.				

PERSONNEL JOURNAL

No. of Positions	Position	Rate Per	Dept.	Days Demand	Date Available
1	Clerk, Print. Service			8 22 39	Now
1	Clerk, Print. Service			10 25 39	"
1	Clerk, Safety Disp.			8 22 39	"
1	Asst. Engineer			8 22 39	"
1	Proc. Inspector			11 10 39	"
1	Instrument Invest.			11 10 39	"
1	Fin. Matl. Insp.			11 10 39	"
1	Proc. Matl. Insp.			11 10 39	"
1	Fin. Matl. Insp.			11 25 39	"
11	Total number of surplus for Shop				
1	Batch Hands			11 25 39	Now
1	Solders			11 30 39	"
1	Auto. Screw Mach. Oper.			12 01 39	"
1	Total number of surplus for Shop				
1	Price Rate Analysts			3 01 39	Now
1	Total number of surplus for				
1	Accounting Clerk			11 10 39	Now
1	Cost Analysis Clerks			11 10 39	"
1	Cost Analysis Clerk			9 18 39	"
1	Cost Analysis Clerk			10 25 39	"
1	Total number of surplus for				
	Grand Total for Manufacturing Departments.				

Improved Toolroom Practices

WHILE the percentage of skilled tradesmen in a company may be comparatively small, their work is of crucial importance. This is perhaps more true of toolmakers than of any other skilled occupation.

It is of vital importance, therefore, that these men should be "backed up" with the best facilities that the organization can offer. When we say backed up we mean that care should be taken to see that; the blue prints, specifications, and drawings provided them are as complete as possible, so that they do not have to spend an unnecessary amount of time figuring out the job; an adequate amount of engineering advice and assistance is available to them; they have accurate, complete and dependable cutting and measuring equipment; enough specialists, such as grinders, milling machine operators, etc. are available to do parts of the job.

Improved Practices Reduce Hiring Needs

A COMPANY, conscious of the importance of these factors, and realizing that they influence the number of toolmakers they require, or might have to hire, made a comparative survey of its practices in relation to those of other companies, and learned much of value.

Attached is a schedule of the questions which they asked.

It appears likely that benefit would be obtained by companies, if they made up similar questions in regard to other departments, employing substantial numbers of skilled workers, such as machine shop, machine building, maintenance, etc. to make sure that they are backing up their skilled workers to the fullest extent necessary.

Toolroom and Toolmaking Practices—Questions Asked

OUR company is making a study to compare the company's practices with those of other companies for the purpose of determining whether toolroom and toolmaking practices in other large plants might reveal ways and means by which the present toolroom force might be made more productive, thereby reducing the need for employing additional skilled help. The following questions are typical of those on which an effort is being made to get information:

1. Is the toolmaking job comparable in the matter of (a) complexity of design; (b) required degree of accuracy; (c) finish?
2. Are toolmakers required to have the same degree of skill, experience and over-all ability to construct tools as required of our highest class toolmakers?
3. Are die makers assigned to work on cutting, forming and drawing dies indiscriminately, or do they specialize on a particular type of die?
4. Are toolmakers required to work on more than one tool at a time?

Ratio of Supervisors

5. What is the ratio of supervision to toolroom employees?
6. To what extent are engineering assistance and advice provided to toolmakers?
7. Is our engineering and working information as detailed and complete as that provided in other companies?
8. To what extent are personal initiative and ingenuity of the toolmaker required in developing dimensions (such as forms and blanks), which might suggest ways and means of improving methods, equipment or the product, checking drawings for accuracy, proving in improved tools, etc.?

Provision of Proper Equipment

9. Do we provide toolmakers with as accurate, complete and dependable cutting and measuring equipment as may be justified?
10. How large a percentage of the machining of details are toolmakers required to handle?
11. Are toolmakers required to perform surface grinding operations of high order, such as grinding die sections with irregular and angular contours?
12. What per cent of toolmakers are required to possess the necessary skill, experience and ability to surface grind die sections of the kind referred to?

Speeding Up Training

WHAT are the possibilities, in emergency periods of rapidly expanding business, of speeding up training or learning times for higher rated skilled and semi-skilled production workers? It is said that under normal conditions the learning time is lengthened, because it is influenced by the time taken by junior employees to mature, and acquire familiarity with shop traditions.

To meet a shortage of semi-skilled bench workers a company experimented with a group of segregated workers, to see how much the learning period could be speeded up. After 11 weeks their output was equal to that of workers trained under shop conditions only after 2.6 weeks. When they went into the shop, their output was substantially higher than the shop average. (See Chart III.)



CHART III

Speeding Up Training

THIS suggests the possibility that punch press operators, grinders, milling machine operators, etc. may possibly become proficient in a shorter time than is usually thought necessary, if they are given special intensive training.

Fasting training of this sort was found to necessitate: special analysis of the job, breakdown into teaching sequence, stimulation of the will to learn, detailed check to catch errors and faulty methods, analysis of defects produced and their causes, and special efforts to shorten the plateaus, which occur in all learning curves.

History of Training

This report covers a training activity in semi-skilled bench work operations conducted in one department. This report deals solely with the training undertaken in 1936 and concluded during the first half of 1937.

In previous years the training of semi-skilled help was left entirely to shop organizations. With the up-turn of business activity during 1934 and 1935 it became evident that the company would be faced with the necessity of training large numbers of people in many of its semi-skilled bench operations.

It was felt that with the burdens already imposed on supervisors, with respect to production requirements under new organization conditions, and the re-training of rehired people who were being taken on at a rapid rate, it would be better to provide for separate training of new employees in occupations of this class which involved skills held generally to be such that 1-2 years' training would be needed to acquire them.

It was felt that an experiment in this direction would be advisable for the following reasons:

1. Because training might reveal ways of shortening the learning period.
2. Careful observation of people while learning, together with a study of learning curves, might give us more insight into the question of how a given skill can be most quickly acquired.
3. By giving concentrated attention to problems of learning and instruction, a better methodology of instruction might be developed. If this could be done and made explicit, the value of its application to shop training in general is obvious.

New High Output Records Established

AS PART of the experiment in segregated training for certain semi-skilled bench operations, the training school started in the summer and fall of 1936. The first students were put on in August, 1936, and after eighteen weeks of training they reached a point where their efficiency compared favorably with that of the average in the regular shop department. At the end of twenty-two weeks of training they were transferred to the regular shop department where they successively established new high output records.

Their average output ranged from 180 to 250 units a day as compared to a former average departmental output of 145 to 160, which subsequently increased also to

approximately 175. Based on this experience, which is recognized as not being wide enough to justify final conclusions, the training period for this job can be set tentatively at four months.

Training Methods

It is probably worth while to mention briefly a few principles of instruction which have been followed. In the first place, experience in training industrial workers shows that the instructor must have ample time in the beginning to give detailed individual instruction to the learner. He should be given not more than two or three beginners at one time if instruction is to be most effective. In the second place, the instructor should make explicit, i.e., reduce to writing, the method he is to follow in teaching a new skill. This means an evaluation as to content and order of the general and detailed instructions which he is to give.

In this connection emphasis on technical skill required to perform an operation is not enough; providing means at the right time for stimulating the will and desire to learn must also be considered. Again, the operation to be performed, if at all difficult, can be more easily learned if broken down into a series of progressive steps, each one of which, being more simplified, can be learned more easily. Each sub-operation is then practiced until the student is familiar with requirements. Manufacturing layouts, specifications, results of time and motion studies are used for this purpose. (On certain jobs where time standards are set up for sub-operations, experimental studies have indicated some value in bringing each sub-operation up to task time before the student is permitted to take the next operation.)

Following his outline and with these aids, the instructor first leads the student through an analysis of the apparatus to be adjusted, showing him the various parts; how they are assembled; what the different requirements are, why necessary, and where found (manufacturing specifications); and finally, with laboratory demonstration how the apparatus functions in actual operation.

Catching Errors Before Habits Set

WHEN the student is first started on actual work, another important principle is observed—detailed check to catch errors or retarding factors before habits are set. Each operation is observed by the instructor until he feels that the student understands the requirements and how they are to be met. Each completed unit is likewise carefully checked for the first two or three weeks. Accuracy, rather than speed, is emphasized. After the student becomes more familiar with the work, the instructor makes only a spot check to catch faults that might creep in when the student begins building up speed.

It is in this analytical approach that most instructors in shop skills, who are usually selected mainly on the basis of their own skill in the job, need careful supervision and assistance. The assistance required should be given by trained job ana-

lysts, and by others trained in teaching methods to aid the instructors. The following steps outline the approach to this problem:

Bases of Teaching Methods

1. Analysis of the operation to be taught, as normally performed, with special attention accorded to the best motions of fingers, hands, arms, and body, the most advantageous placement of work, tools, etc.
2. Breakdown of the operation into a teaching sequence, showing each step to be taught separately:
 - (A) First lesson—tools, work bench, and parts handled
 - (B) Second lesson—performance of one sub-operation
 - (C) Third lesson—performance of several other sub-operations
 - (D) Fourth lesson—coordination into correct sequence
 - (E) Fifth lesson—elimination of defects observed by explanation of faults
 - (F) Build up for reaching outputs desired.
3. Re-analysis from the angle of introducing interest and an inducement to learn, that is providing means at the right places and times for stimulating the will to learn and achieve.

Follow-up work may be said to consist primarily of four important phases as follows:

Detailed check to catch errors in operation, faulty techniques, and other retarding factors in the learner's efforts and methods, before habits are set. This includes an analysis of defects produced and their causes, as well as retarding motions and waste effort.

Stimulating interest in the work by showing the learner the uses of his product, its importance, and how certain difficult requirements are related to the ultimate use and operation of the product.

Stimulating a desire on the part of the learner to experiment with easier operations to accommodate his individual skills and manipulative abilities. This must be done carefully, however, lest a learner deviate injudiciously from the method being taught, which presumably is the best that can be devised for the average individual.

Stimulating willingness on the part of the learner to step out from the group level and produce outstanding outputs, regardless of group mores or restrictions.

Acquisition of Skill Very Rapid

FOR the sake of brevity, salient features will be enumerated rather than elaborated. The most obvious item, and a rather remarkable one, is the rapid acquisition of skill as compared with previous training records. This is particularly noticeable after the 5th week of training. This should not be interpreted to mean necessarily that segregated training is better than the traditional method; it is only the story of a small group of operators compared with a larger group, and their case is not yet closed.

Their showing may be an evidence of greater personal adaptability; a reflection of more intensive training; or a conditioned response to a different setting.

Some of the wide variations in performance recorded, affect the configuration of the chart, but are impossible to evaluate. However, these often have rational explanations unrelated to the learning process itself.

Difficulties Encountered

FOR instance, on Monday of the 8th and 9th week each man's output took quite a drop due to spending over an hour on repairs. On Tuesday of the 6th week, they were given a related but different type of work, which, while easier to adjust required a week's experience before a new peak could be reached. During the 10th week, one man contracted hay fever and worked under a considerable handicap for several weeks. In the 12th week the same operator had quite a slump because he had allowed his gauge to slip, which resulted in a large number of repairs.

Variations in performance due to these physical factors, while not so difficult to identify, are difficult to evaluate but much less so than the more subtle and personal, mental and emotional factors which are present.

Certain aspects of the learning process manifest themselves in the chart formations. Initial success is characteristic of most learning processes. Improvement is usually rapid and dramatic in the first stages of learning a new skill. Thus can be seen a rapid acceleration for the first few weeks with few recessions.

Then the second phase of the learning process may be noted—irregular performance. The setbacks become more numerous and more pronounced. The going is a little tougher. At this point it is important that learning be reinforced by careful instruction so the learner will not become discouraged, or emotional by these ups and downs, but recognize them for what they are—stages in learning.

The Will to Learn

FINALLY the configuration of the chart suggests a third aspect of learning—the plateau. If a learner persists in spite of irregular performance, he sooner or later reaches a relatively stable level of accomplishment, where there seems to be little variation in performance. How long he takes to reach this plateau, or at what level the plateau is struck, is determined not only by the physical stimuli, but also by the particular intellectual and emotional equipment (will to learn) which are characteristic of the learner. Such long range plateaus are evident after the fifteenth week and are not surmounted until new interest is aroused through transfer to the shop on a piece work basis.

As indicated by these curves, a succession of minor plateaus occurred before this time, each representing a peak of accomplishment which seems difficult to surmount but is finally overcome by a consolidation of acquired skill.

Coincident with the appearance of these minor plateaus, many things are prob-

bly happy stop which are impossible to evaluate. The lift that comes from rapid progress in the beginning is often lacking. As the new skill becomes improved and consolidated, it is becoming a habit rather than a performance demanding concentrated attention. Or, there may occur at this stage an unrecognized block to the learning process.

Emotional attitudes, frustrations, conflicts, or lack of adequate incentive may be operating to retard the individual. Probably somewhere in this area, if we could understand it, lies the explanation of one man's inability to keep up with another. Certainly it is a field in which more intensive observation is needed.

What Happens When Transferred to Shop

Performance in the shop of these specially trained men is also interesting. In the first place, a definite superiority of one worker, manifested early in the training became more pronounced as the initial adjustment period in the shop was passed.

This man also showed continued superiority over the entire group in performance. Furthermore, he showed continued progress toward higher output levels until June, when his output fell off sharply although still remaining decidedly above the group average level.

It is interesting to try to conjecture the cause for this. Two reasons are suggested which may have a bearing, (1) An increase in wage rate not fully commensurate with this man's effort and productivity. This is suggested by the coincidence of the drop in output with the announcement of an increase in rate of pay. (2) General difficulty with new requirements, which is reflected in the group performance level and a high average defective level.

The output record of this man in the shop, indicates an interesting persistence in maintaining output levels greatly in excess of group averages. This raises the question as to how influential segregated training might be in stimulating the individual to break through group mores and restrictions, and maintain his outstanding effort, in spite of any pressure that may be exerted to "bring him into line."

Training on the Job

ONE obvious way of avoiding the necessity of hiring more skilled workers, to build and maintain tools and machines, is to make sure that production workers are as efficient as it is possible to get them. Assurance on this point means that the maximum production is gotten from plant facilities.

One company, realizing the importance of this phase of the skilled labor supply problem, set up a "job training program" to increase the efficiency of its working force of skilled and semi-skilled workers.

This is a plan whereby selected trained skilled workers, working under the supervision of departmental superintendents, augment the instruction given by foremen to new workers, to those in need of corrective instruction and to those capable of upgrading. The foreman is thus provided with skilled training assistants.

The program is related to the company's merit rating plan. Covering machine shop, maintenance and production employees, it aims at improving the output and work of those rated medium and low.

Ready for Expanding Business

SOME thirty men have been trained as instructors. They know not only the jobs, and how to teach them, but also job analysis, time study and merit rating methods. Since the program started they have improved the work of some 3000 employees. A reserve of more capable skilled workers has thus been built up, for use during expanding business, and a squad of instructors trained, ready for the rapid induction of new employees.

This company feels that the program is beneficial in the following ways:

- a) Improves skill of all, including skilled workers
- b) By improving the skill of production workers, reduces the amount of tool and machine maintenance, repair and renewal.
- c) Increases output and reduces spoilage, thereby increasing effectiveness of plant facilities.
- (d) Supplements merit rating plan in pointing out workers of outstanding ability for further training.

Details of the setting up, method of operation and results of this program are described by Mr. Eugene B. Mapel, of the Carnegie-Illinois Steel Corporation.

Old Pick-up Training Inadequate

FEW individuals would deny that, with the industrial competition of today, the old "pick-up" method of training is inadequate to cope with present conditions. The result has been that all industries have developed various methods of training employees in order that they might be able to increase the efficiency of their working force with a minimum of expense. The purpose of this monograph is to outline,

for the benefit of those who may be interested, the philosophy underlying the program and the procedure in training.

Training Assistants for Foreman

A carefully organized program of job training may take several forms, the most common of which is job training instruction by the operating foremen. For the purpose of this resumé, however, we refer only to a specific experimental program, whereby selected trainers working under the supervision of departmental superintendents augment the instruction of foremen, given to employees in need of up-grading, and in those divisions where minor changes in method may result in increased employee efficiency.

The philosophy underlying this job training program is that the foreman will be provided with skilled assistance, which will make it possible for him to fulfill his responsibilities. It should be clearly understood that there is no intention to lessen in any degree the responsibility of the foreman for the training and safety of his men.

Probably the greatest stimulus to a job training program was provided by the installation of the present merit rating system used in the plants of the Company. With the determination of the sub-marginal workers, we must offer more to the employee of long service, whose work has been unsatisfactory, than an encouraging word or a hint of criticism, if we are to expect an increase in his personal efficiency.

Selection of Trainers

IN 1938, a Training Council, composed of departmental superintendents, selected a group of twenty-five "potential job trainers." These men were selected on the basis of the following:

- a. Departmental experience on a variety of departmental operating units.
- b. Technical education and back-ground.
- c. Personality.
- d. Executive potentialities.

The result, following this method of selection, has been that practically all of the original group of twenty-five are considered capable of organizing instructional material, and of training both sub-marginal and the higher rated workmen.

Instruction of Job Trainers

THE job trainers selected by the Training Council were placed in a class under the leadership of a professor of the state university, in which they have been given, up to the present time, a total of sixty-eight hours of class-room instruction in the technique of training employees.

These instructions were developed to include the following:

1. Organization of instructional material.
2. Techniques of instruction:
 - a. Preparing the workers for instruction in a new method.
 - b. Introducing the new method through instruction.
 - c. Testing the ability of worker to apply the method effectively.
 - d. Supervising application of method.
3. Job analysis and sequential steps in performing operating functions.
 - a. Manipulative skill.
 - b. Job functions in sequence.
 - c. Related technical knowledge.
 - d. Safety factors.
4. Job simplification.
5. Principles of time study.
6. Techniques of conference leadership.
7. Methods of handling personnel problems:
 - a. Instructions in company policy.
 - b. Procedure in handling grievances.
 - c. Techniques in determining causes of employee dissatisfaction.
 - d. Elements of industrial psychology.
8. Purposes of scientific management.
9. Incentive plans and wage payment systems.
10. Variable budgetary control.
11. Methods of computing comparative productiveness.
12. Report writing.

Installing the Program

BEFORE assignment to job training duties, trainers were given an orientation period varying from one to three weeks during which time they observed operations in the department to which they were assigned, analyzed the results of merit rating and determined, with the advice of departmental superintendents, those locations where the need for training was most pronounced.

As the problem presented itself in the plant, job training would follow one of three courses:

- Training in techniques of the next higher operating position.
- Diversified training on a variety of jobs.
- Re-training in connection with the employee's present job.

After carefully analyzing the needs, it was determined that the latter course offered the greatest possibilities for accomplishment in training at this time; however, in a few isolated cases employees have been trained in the operation of newly installed

equipment or units, and invariably the results have been satisfactory. As a result of this experience, the following plan was pursued in putting the general program into effect:

1. *Instructions* were prepared by job trainers covering those occupations where training was to be done.
2. *Analysis* was followed in training employees in sequential steps of operation.
3. *Delve reports* were utilized in determining the basis for training in the elimination of certain specific production delays.
4. Instructions, concerning individual deficiencies, were given to employees who were rated as submarginal.
5. Group conferences, covering related technical information pertinent to the job, were held for employees who voluntarily desired to attend on their own time. These included:
 - a. Mechanics of operation.
 - b. Order specifications.
 - c. Quality standards.
 The specific purposes of these conferences were:
 1. To stimulate employees on production units to do more constructive thinking about the best method of performing their job, and to create among them a greater interest in their responsibilities.
 2. To bring to light by group discussion certain differences of practices among operators, and thus tend to unify procedure.
 3. To give the lower ranking men an opportunity to learn more about the principles of the particular operation being discussed.
6. Job trainers analyzed unsafe practices resulting in injuries sustained by the employees and hazards incidental to the employees' work. Safety training was then given to employees in the following manner:
 - a. Visual safety education through the use of motion pictures and slides regarding unsafe practices.
 - b. By informing employees of unsafe practices at time of occurrence.
 - c. By developing safety consciousness through daily contacts.
 - d. By preparation of safety questionnaires and other material for use of training and trainers in new safety meetings.

Use of Merit Rating

TRAINERS were instructed in methods of analyzing merit ratings to determine personal characteristics of employees in need of further development.

An attempt was made to objectify these findings. In a majority of cases it was found that the tendency in ratings was for supervisors to rate employees either high or low on all factors, as for instance, an employee rated high on "Productivity" would also be rated high on "Safety" and all other factors in the rating scale. As a result of the analysis of ratings we did determine, however, that there was a very definite correlation between supervisors' ratings on "Overall Job Performance" and the employees' productivity as revealed in checking production reports, scrap reports and other quality and production records. Consequently trainers were able to segregate employees in performance groups, and concentrate on training those employees where the need for training was most pronounced.

Job trainers assisted foremen in interviewing employees in regard to their ratings and were informed, by foremen, of employee attitudes, grievances, production difficulties, etc. as revealed in interviews. This enabled trainers to more intelligently approach the problem of training the sub-marginal worker.

Responsibilities of Job Trainers

Job trainers are responsible for their actions indirectly to the foreman on the crew to which they are assigned, and directly to the departmental superintendent. Another indirect responsibility is to the Training Council. This responsibility will, however, terminate after the formative stages of the program have been completed.

Reports of Activities

Job trainers prepare either daily or weekly reports covering their activities. These reports are given to the departmental superintendent and a copy is forwarded to the plant director of training. In some cases monthly reports reviewing activities are prepared. However, these are not required.

The two purposes of the required report are to benefit the trainer and to inform the superintendent of his activities. We believe that to produce in writing, a formal statement of accomplishment demands a thoroughness of review not ordinarily undertaken. Consequently reporting activities will serve as an additional stimulus to the trainer.

Organization of Instructional Material

ALL job training activities are predicated on the theory that we must accurately determine where training is needed, and then determine the best methods of performing the job functions before we can train the worker correctly.

A comprehensive job analysis is usually sufficient to determine the best methods, if the trainer is experienced in performing the job, and is well schooled in methodology; however, in some instances this is not possible. To mention a specific problem where more research is required, there are approximately three hundred female employees in the plant engaged in inspecting and sorting. Only a hurried observation is necessary to convince the observer that there are practically as many different methods of sorting as there are employees performing this work.

Because of this problem, the professor has tested the employees in this department in the various component factors of the job, such as Visual Acuity, Manipulative Skill, Accuracy in Detecting Defects, and Speed in Reaction Time. These tests have made it possible to determine individual employee deficiencies, and a micro-motion analysis is being made of the workers' job functions in order that the best method may be determined.

As a result of this research, job trainers will know whom to train, how to train and what training should be given employees in this division.

Personnel Functions of Job Trainer

One by-product of the job trainers' activities which has not been heretofore mentioned is his assistance in personnel matters in the department. Although no attempt has been made to develop this function, it has been a natural outgrowth of job training because of the trainer's proximity to the worker; and his familiarity with both the employees' and employers' problems.

We believe that in the near future job trainers will be expected to do the following:

1. Recommend to the superintendent shifts in personnel for the purpose of increasing crew effectiveness.
2. Assist in supervising departmental personnel records.
3. Assist in adjustment of employee grievances.
4. Consult with the superintendent on cases of promotion, demotion, lay-off or transfer.
5. Assist in supervision of departmental educational and recreational activities.

The above list might be expanded materially; however, we consider that it is fairly representative of the type of service which will be required of "Job Trainers" as their individual growth warrants.

Methods of Checking Results Obtained

As a part of the instruction given job trainers, they were taught to use variable budgetary control reports in checking the effectiveness of their training efforts. Other tools used for this purpose were: departmental production reports, semi-annual merit rating of employees, roll change and delay statistics reports, scrap percentages, and other standard reports used in quality comparisons.

Summary

WE MAY NOW briefly enumerate the results which we believe will be obtained from a carefully planned job training program:

1. Because of close supervision and definite job training we are in a better position to ascertain the ability and potentialities of new employees during their probationary period.
2. There will be an improved esprit de corps.
3. The mechanism is provided for bringing the unskilled, untrained, or poorly trained workers to the desired point of efficiency with a minimum of delay and expense.
4. It is possible to assign people to work for which they are best fitted.

5. It tends to promote standard practices in all parts of the shop and plant, and provides an excellent avenue for the plans of the industrial engineer.

6. It unearths potential mechanical or supervisory ability.

7. The mechanism is provided for giving the worker "on the job" instruction in safe practices, machine hazards, etc., which supplementing the foremen's efforts, should result in a reduction in the accident frequency rate.

8. It improves employee morale by encouraging a pride in workmanship.

9. Improvement in method will tend to reduce worker fatigue.

10. It will provide management with trained employees, to assist in the installation of management instruments, such as, Merit Rating, Budgetary Control, etc.

11. Excellent practical experience and education have been given job trainers to prepare them for more responsible supervisory positions.

Apprentice Training Costs

One company made a study of its apprentice training costs and related them to the value of the productive work done by apprentices during the training period. The cost and value of productive work per student in 1938 were as follows: (See Table 9.)

Cost per apprentice	\$1,425
Value of productive work per student	\$8,335

TABLE 9

ANALYSIS OF EXPENSE INCIDENT TO THE TRAINING OF JUNIOR MECHANICS

	1938
Number of Students: Weekly Average:	
In Training Shop	24
In Tool & Machine Shop	29
Total	53
Salaries & Non-Prod. employees	\$13,699.00 (Administrative supervision (i.e. exclusive of shop supervision) and classroom instruction.)
Miscellaneous Expense	719.60 (Stationery, blueprints, etc.)
Small Tools	4,137.00
Repairs	3,587.94
Practice Work	9,841.70
Classroom Time for Students	7,505.00
Total	\$38,948.24
Value of Productive Work in Training Shop	\$48,422.00 (This figure represents the value of productive work completed in the training shop and means a recovery of wages paid the student for productive work, of wages paid to shop supervisors and instructors, as well as recovery of miscellaneous expense items such as heat, power, light, depreciation of equipment, etc.)

Table 9 Explained

ITEMS enumerated as expense represent the net cost to the company of conducting a training program. Other items of expense which are recovered through the value of work produced are not included; for example, stock used in production work related to training work is recovered through the value of the work, and stock used for practice work is shown as a cost item.

The figures do not attempt to evaluate work done by students for time spent

in the line organization, where wages paid students are usually fully recouped by the value of their productive work. Approximately two-thirds of the student's time is spent in the line organization. Were it possible for the students to spend more time in the line organization there would be a tendency for the expense of running the training shop to decrease. Our objective is to keep students in the training shop the minimum amount of time required to do an effective training job.

Wright Aeronautical Plan

THE Wright Aeronautical Corporation of Paterson, New Jersey has developed an interesting plan for the preliminary training of operators of grinding, milling, boring, drilling, etc. machine operators in cooperation with the Paterson Vocational School.

This program is described below in the words of Mr. James F. Mason, Director of Vocational Education, Paterson Board of Education

Concentration on Single Machines

THIS operator training program consists of a four weeks course, one week of which is devoted to classroom work; arithmetic including angular measure; applied science, such as power, heat, friction, lubrication, coolants, safety and hygiene, reading blueprints and operation sheets and the use of measurement instruments. Use is made of mimeographed class sheets and home study sheets. Classes are divided up into groups of twenty and teachers are provided by group leaders from the Wright Aeronautical plant. Classes run from 4 to 10:15 p.m. with a half day on Saturday, making 34 hours a week.

Following class room work, there is three weeks of concentrated work on a single machine. The type of machine on which a man will be trained is governed by his grasp and intelligence shown by the classroom work. The best men are trained on grinding machines, then milling, automatic screw machines, boring mills, lathes and drilling operations.

Graduates of these fast courses are sent over to the Wright employment office as required, usually in batches of 24 per day. When put to work, the trainee stands beside a regular operator anywhere from two to six weeks depending upon the type of work. Mr. Mason cited an example where a man after two weeks of observation in the plant was able to run a vertical turret lathe and earn \$40 to \$50 a week on group bonus without producing any scrap. The group bonus plan makes allowance for learners to the extent that a new man is expected to produce only about 40 per cent of their bogey. Actually they produce about 60 to 80 per cent even in the first week so that these learners are very much welcomed by other men in the group.

Company Provides Instructors

ASSOCIATED, Wright Aeronautical Corp. provides the teachers, usually selected from their best operators. In the classroom each teacher has a four hour teaching load, but in the shop where there is one teacher for ten men instead of twenty in the classroom, they supervise for the full eight hours. These men devote full time to the school work, but are paid \$10 a month so that they may be retained on the payroll of the Wright Aeronautical Corp. This also allows them to retain their badges, and to keep in contact with the plant. The Wright company fur-

nishes all the raw material that is cut up in the shop, usually a rejected part or material, and has given to the school many pieces of used equipment.

Night Shift Proposed

THE plan has been so successful that the school is about to adopt a second shift of teaching running from 11 p.m. to 6:15 a.m. This will require a new set of teachers. The present system can provide 120 to 130 men per week to the Wright plant. Applications for entrance to the school are limited to Paterson residents. Since the shop load in the school is what counts, the cycle is really three weeks. Registration for a three week period has run 1200, 1100, 900, 1600, 1375 persons. Applicants are classified as to

A—married men that are high school graduates or have some experience in industry and are unemployed

B—married men who are not high school graduates.

C—single men, high school graduates or with some experience in industry.

D—single men who are not high school graduates.

The age limit is twenty to thirty years. Applicants must present a birth certificate or naturalization papers, and are checked by attendance department as to residence. They get a physical examination in the school which corresponds to the plant's physical examination.

Doubling the Labor Supply

How many skilled workers in the lower labor grades are available for upgrade training in industry

TABLE 10
NUMBER OF SKILLED TRADESMEN, CLASS A, B, C AND D IN A GROUP OF MANUFACTURING COMPANIES, 1937

OCCUPATION	CLASS A	CLASS B	CLASS C	CLASS D	TOTAL
Scrap Metal	1937	40	179	17	
Electrician - Motor	1937	3	33	28	
Millwright	1937	19	182	39	
Machine - Motor	1937	664	112	44	
Painter - Motor	1937	66	39		
Pipe Fitter	1937	66	66	38	
Tool Room Machine Operator	1937	66	244	80	
Auto. Screw Machine Operator	1937	3	33	179	
Lathe Die in Column Maker	1937	112	343	223	163
Boring Mill Operator	1937	3	3	4	
Drill Press Oper. (Radial)	1937	3	10	6	
Drill Press Oper. (Horizontal)	1937	2	28	49	
Grunder	1937	94	133	266	
Lathe Operator - Engine	1937	3	113	27	
Lathe Operator (Turret Machine - All Around)	1937	138	633	191	
Milling Mach. Operator	1937	113	7	171	
Painter or Sprayer	1937	38	166	128	
Planer Operator	1937	142	333	358	
Sheet Metal Worker	1937	27	9	99	
Welder (Resistance or Spot)	1937	39	43		
Welder (Arc or Gas)	1937	33	137		
Punch Press (Set-up Man).....	1937	18	133	79	
Punch Press Operator	1937	116	364	473	
Totals..	1937	1,932	3,646	2,687	163
Grand Total all Classes.....					8,728

A survey of 41 representative manufacturing companies in the metal trades shows that in 1937, they had 8728 workers classed as skilled. Of these only 1932 were in the highest skilled classification, A. There were 6796 skilled workers in Classes B, C and D.

If 50% of these lower grade skilled workers can be given upgrade training by industry into Class A, then the supply of highest grade skilled workers would be doubled.

This would leave room for hiring at the lower levels, unemployed skilled workers, or older ones, or those whose skill has depreciated through lack of practice.

Table 10 shows the situation in these companies for a selected group of occupations.

Output per Skilled Worker Increased

THIS report has described recent experiences of a number of companies in manufacturing industries in meeting their skilled labor requirements.

Skilled Labor Defined

SKILLED labor¹ is defined as workers engaged in the trades, and machine occupations, commonly recognized as being in the skilled classifications, of which the following are representative:

Blacksmith	Lathe operator—auto wood turning
Buffer polisher—metal	Machine setter
Cabinet maker	Machinist—all around
Carpenter	Milling machine operator—precision
Detail maker	Millwright
Die maker	Painter
Electrician	Pattern maker
Gauge maker	Pipe fitter
Grinding machine operator—precision	Screw machine operator
Heat treater	Sheet metal worker—all around
Instrument maker	Toolmaker
Lathe operator—precision	Welder—arc and acetylene

The Federal Reserve Board's seasonally adjusted index of industrial production reached 128 in December 1939. This was the highest level on record, surpassing even the previous record of 126, reached in May 1929. That industry could attain this level, following years of sub-normal activity, for many companies, and meet increased requirements for skilled workers, indicates a resourcefulness of industrial management, and definite progress in technological and personnel work over the previous decade.

Difficulties encountered in meeting skilled labor requirements in 1936-37, and more recently in 1939-40, warrant a review of steps taken to meet them.

Where There Are Shortages

SKILLED labor shortages have been reported in some fields, particularly in machine plants producing products for the machine tool and aviation industries. This survey does not bring out whether there are actual shortages, or merely natural difficulties in contacting and influencing skilled workers to return to industry.

A study made by the National Industrial Conference Board* in 1935 showed that 5% of skilled workers disappear from employment rolls annually through

*N. I. C. B. Studies #216—"Wanted: Skilled Labor".

death, retirement and changes in occupation. If this is true, and if the limited amount of apprentice and other training of the last ten years is disregarded, industry late in 1939 manufactured goods at a rate equal to that of ten years before with 60% of the skilled labor of 1929.

There is presumptive evidence, that industry did use less skilled labor, as may be seen in Chart IV, reproduced from the Monthly Labor Review, December 1939, p. 10. This shows for a group of 59 manufacturing industries a 100% increase in output per man-hour, for all wage earners in the 18-year period, 1919 to 1936, with an almost corresponding decrease in the number of man-hours during the same

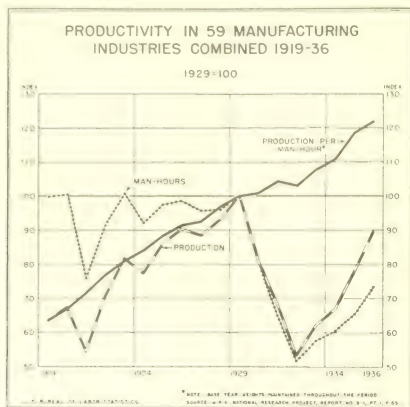


Chart IV

period. Proportionate decreases in employment would not necessarily follow because of the shorter work week of recent years.

Man-hours per Unit of Output

TABLE II* confirms the idea that a reduction in man-hours per unit of output has taken place, by indicating reduced labor costs per unit of output in 1935 compared with 1929. Average hourly earnings of all wage earners in 25 manufacturing

* U. S. Bureau of Labor Statistics, *Monthly Labor Review*, December 1935, Page 14-15.

OUTPUT PER SKILLED WORKER INCREASED

industries, as reported by the National Industrial Conference Board for those years were \$ 39 in 1929 and \$ 60 in 1934.

While this data indicates a decreasing trend in the number of workers per unit of output, no long term, or general figures are available to indicate whether this

TABLE 11
INDEX NUMBER OF LABOR COST PER UNIT OF OUTPUT IN SELECTED MANUFACTURING
INDUSTRIES, 1927, 1929, AND 1934¹

INDUSTRY	INDEX NUMBER		
	1927	1929	1934
Nonferrous metals (primary and finished shipments)	100.0	79.1	69.2
Rayon	100.0	15.8	15.2
Petroleum refining	100.0	15.0	12.4
Cane-sugar refining	100.0	79.4	13.4
Chemicals	100.0	77.7	70.5
Cement	100.0	72.1	63.0
Boots and shoes	100.0	84.1	64.0
Cotton goods	100.0	81.2	62.6
Iron and steel (blast furnaces, steel works, and rolling mills)	100.0	81.8	61.1
Rubber products (tires and tubes, boots and shoes, and other rubber goods)	100.0	81.2	61.1
Ice cream	100.0	58.2	58.2
Flour and other grain-mill products	100.0	56.1	56.1
Paper and pulp	100.0	54.0	54.0
Fertilizers	100.0	50.6	50.6
Clay products (other than pottery) and nonclay refractories	100.0	49.0	49.0
Confectionery	100.0	48.0	48.0
Lumber and timber products	100.0	47.8	47.8
Newspapers and periodicals	100.0	47.5	47.5
Canning and preserving	100.0	43.2	43.2
Woolen and worsted goods	100.0	41.0	41.0
Planing-mill products	100.0	40.4	40.4
Paints and varnishes	100.0	38.6	38.6
Leather	100.0	37.7	37.7
Knit goods	100.0	37.4	37.4
Bread and other bakery products	100.0	36.1	36.1

¹Limited to those industries of the National Research Project survey for which comparable production and payroll figures are available.

²Derived from National Research Project production indexes and Bureau of Labor Statistics payroll indexes.

³The base year is 1925.

proportion of skilled workers to total workers, to production workers, or to unit of output, is increasing or decreasing.

It appears to be the general opinion, however, that the ratio of highly skilled labor, in large plants, related to production workers, or output, is decreasing.

Technological Changes

THE following technological changes which have taken place during the last few years, are said to have reduced the need for highly skilled labor:

a) Progress in standardization, and advances in the design of products manufactured, has lead to simplification of processes and reduced the need for skilled labor.

b) Improvement in tools, gauges, dies, machines, materials and methods has reduced the amount of skilled labor needed in making and repairing tools and equipment.

c) Advances made in design, and improvements in construction of tools and machines used for production has resulted in their greater accuracy, longer life and increased dependability, even in equipment operated at higher speeds.

d) Engineering advances in production control and production methods, improvement in layouts, in instructions to workers, in standards and in the application of motion economy principles have also had their effect.

e) Mass production has led to specialization on work formerly considered a component part of an all-round skilled trade. Production workers with specific training, but less all-around trade skill, have been assigned and can perform present jobs with efficiency.

Economic and technological factors, therefore, have influenced the skilled labor problem, which has been hitherto commonly regarded as one of personnel and training.

Recommendations

AS PRACTICALLY all companies cooperating in this report have had considerable experience in formalized apprentice training work, no intensive study of such training was made.

Variations in Apprentice Training

IT is generally recognized that there are variations in formalized apprentice training programs which should be considered by interested companies.

Variations occur in:

Methods of selecting apprentices. Not all companies make use of tests, such as of intelligence, trade knowledge and aptitude. Other entrance standards vary. Amount and detail of instructional material available to apprentices.

Method of preparing instructional material. By obtaining the assistance of its operating people in the development and preparation of instructional material, one company found increasing interest throughout its organization in the apprentice training program, and in the attitude of supervision toward those taking the course.

It is said that one of the most interesting trade training programs in America is operated by the Ford organization. This includes the Ford Trade School, Ford Training School and the Ford Apprentice School. These schools have a combined enrollment of approximately 6,000 students, with a payroll for students and instructors of more than \$8,000,000 a year.

The training cost in excess of the production value of work performed is low, because students are employed almost entirely on productive work. A printed descriptive pamphlet on this training work may be obtained by writing Mr. F. E. Searle, Superintendent of Ford Schools, Dearborn, Michigan.

Foreman Training

WHILE foreman training is obviously an important factor in, effectively maintaining or, increasing the productivity of all, including skilled workers, no study was made of it in this survey. The unfavorable effects of inadequate foreman training may be seen from situations reported to have developed in a company in a period of tremendously rapid increase in production. This led to the introduction of an intensive foreman training program, which has been described in an excellent report obtainable from the Washington State Board for Vocational Education, Olympia, Washington. The report lists situations which developed, some of which were as follows:

Misuse of tools and equipment, such as riveting dies, forming tools, hammer dies, jigs and fixtures.

Difficulty of skilled workers from other trades in adapting themselves to this company's work; for example, sheet metal workers, plumbers, welders, electrical workers, bench machinists, etc.

Excessive and unnecessary expense arising out of inspection difficulties and misunderstandings.

Lack of interest in inexperienced and new workers.

Lack of interest of managers in training procedures.

Vocational Education

LITTLE material was obtained bearing on the relation of vocational schools to the skilled labor supply situation. From comments received, it is evident, however, that companies today generally have a higher regard for the ability of graduates of these schools than they did a number of years ago.

It is also evident that manufacturing companies are today taking much more interest in vocational educational work, and recognize that schools of this kind can improve their usefulness only through industrial cooperation.

Job Families

WORK currently being done in the Employment Service Division of the Federal Security Agency under the direction of Mr. O. M. Powell attempts, by special job analyses and psychological tests, to determine jobs that require similar basic skills and have similar vocational ability requirements. Preliminary work indicates that some jobs may be grouped into families.

While this work has not yet progressed to the stage where it has actually been tried out, it seems to have possibilities, in that workers within a family of jobs may possess transferable skills which can be utilized in other related jobs. This may facilitate training for jobs requiring higher skill within the same family.

The result of this study will be published in a book entitled "Occupational Counselling Techniques" by William H. Stead, Carroll L. Shartle and Associates, scheduled for publication in 1940 by the American Book Company, New York.

Attitude of Labor

THE attitude of labor organizations toward these various training plans was not directly obtained. The following opinions, however, were expressed by executives of companies:

(a) A company obtained the union's concurrence in continuing its apprentice training program, in a period of reduced business activity because, in selecting apprentices, the company gave preference to sons and relatives of employees, most of whom were union members.

(b) A company found it necessary to lay off a number of apprentices, because the union objected to their retention, while employees with long service were being laid off.

(c) A company found it necessary to restrict training to needs based entirely on deaths and retirements, to secure the union's concurrence in its apprentice program.

Apparently the union feared that the company was trying to increase the supply of skilled labor, so that demands for wage increases could be more easily resisted.

(d) A company planning upgrade training for electrical helpers had difficulty in obtaining the consent of the union to their program; the union maintains that workers should be upgraded according to seniority, rather than in accordance with ability. The company, however, has now secured acceptance of their program by negotiation.

(e) Most training programs covered in the survey were established without objection from interested unions. The opinion seems to prevail that unions see value in such programs, and recognize that increased skill enables workers to qualify for higher wage rates.

(f) Two labor leaders told the National Defense Commission of experiences in their unions wherein negotiated agreements embody the principles of upgrading, and the protection of seniority within plants and between plants when employees are transferred in order to use their highest skill. It was the consensus of opinion that with the great number of varying conditions which exist within industry, these were matters which should be arranged and agreed upon through local negotiation. It was thought unnecessary and unwise for the Commission to attempt to lay down any methods for dealing with these local problems.

Recommendations

THIS study indicates that companies can better meet their needs for skilled labor, in the present period of expanding business activity, by the following means:

1. Make studies to forecast, as far in advance as possible, requirements for skilled labor by occupational classifications.
2. Inventory available skills and abilities within the plant; study occupations objectively to determine skill and training requirements; through tests and performance ratings select candidates most likely to benefit by training; and carry out organized programs to develop potential skills available through rotational and progression training.
3. Establish and maintain apprentice training programs for higher skilled jobs, where it is apparent that requirements cannot be met by progression and other training programs.
4. Survey toolroom and machine shop practices to improve, where possible, the effectiveness of skilled labor groups. Study of the efficiency and practicability of improving existing practices in the toolroom in relation to engineering, tool design and production departments.

It is apparent that specialization in toolrooms in large plants has increased, although they are still largely run on traditional lines. This suggests that industry is finding it difficult to break down the tool jobbing shop concept to increase specialization of work. This would decrease training requirements for the most highly

all-around skilled labor. On the other hand, there is a question as to how far management can go in breaking down this concept, because if it were to do so it might unfavorably affect attitudes generally associated with craftsmanship in skilled trades—such as pride in workmanship, sense of responsibility, etc.

Regardless of these factors, studies should probably be undertaken to consider the possibilities and practical results of training more specialists rather than all-around skilled craftsmen.

5. Companies should make continued studies of transferable skills, learning periods, training methods and procedures, to seek ways and means of reducing training times.

6. Companies should use practical selection tests—intelligence, trade knowledge and aptitude—in employment and training programs to aid in obtaining a higher probability of worker success.

National Defense Commission Plans

THE Labor Division of the Advisory Commission to the Council of National Defense has a section which aims to aid in the development of "Training within Industry." This is under the direction of Mr. C. R. Dooley, Industrial Relations Manager, Socony-Vacuum Oil Company.

The outline of the aid this section is preparing to render to defense industries, in getting maximum production as speedily as possible is given below.

The Commission has established this service to defense industries in meeting their increasing needs for capable workers and supervisors.

The underlying *PURPOSE* of this activity is:

To assist defense industries to meet their man-power needs by training within industry each worker to make the fullest use of his best skill up to the maximum of his individual ability.

"Training within Industry" Program

BASED upon types of requests for assistance which have been received from industry, the *PROBLEM* of increasing all kinds of skill as needed divides itself into three parts:

Inventory of present skills. This should cover unemployed, employed and employed below their greatest usefulness. Various responsible federal, local and co-operating agencies are already at work gathering this information, but also each plant should take stock of the talent and experience of its employees and make internal adjustments before employing new men.

Training outside of industry. This includes pre-employment preparation and supplementary related, out-of-work-time instruction. This part of the program is already being provided for by public and private vocational and trade schools and by engineering colleges, but it is of such vital interest to industry, that the closest kind of cooperation must be continuously maintained with them. National Youth Administration, Work Projects Administration, and Civilian Conservation Corps also offer opportunities for pre-employment work experience.

It is of utmost importance that the industries served participate actively with the schools in setting up entrance standards, so that all who complete the courses will be acceptable for employment. It is also important that the numbers of persons trained be not greatly in excess of the needs of the industries served. Industry can well afford to supply some of its first class employees to schools as teachers. Some of their retired employees would be excellent instructors. Industrial management can also assist these other agencies in making their services increasingly useful to industry.

Training within Industry. This particularly deals with industry's own training

responsibilities, and is the area in which the efforts of this activity will be concentrated.

Three Training Problems

THE conclusions of various recent conferences confirm experience that this training includes three phases:

1. The careful analysis and definition of jobs according to basic operations in order that there may be intensive instruction and planned *job progression* for each worker. All new inexperienced employees should be started at beginning jobs.
2. The establishment of *trades apprenticeship*, in accordance with federal standards, separate from job training for the purpose of developing a predetermined, limited number of all-round journeyman mechanics.
3. The *development of supervisors* through careful selection, assignment of supervisory duties of increasing responsibility, and provision for related organized help through discussions and conferences under both plant and outside auspices. Technical and other management assistants must be developed also.

Advisory Assistance for Defense Industries

IT is the intention of this organization to render specific *ADVISORY ASSISTANCE* to defense industries in inaugurating programs which they will carry on within their own plants at their own expense. The availability of this service will be made known, but will not be compulsory. There will be no authority to go into a plant on any basis other than at their request.

Four general types of assistance will apply in most cases and will be adapted to fit the various conditions in each specific plant.

1. Help in the analysis of the training needs.
2. Aid in setting up a program within the plant to meet its needs.
3. Make available the experience of other employers who have met similar problems through headquarters and field clearance.
4. Acquaint plant managements with the availability of tax-supported government agencies, such as the state and federal employment service, vocational and trade schools, engineering colleges, N.Y.A., C.C.C., W.P.A., so that the fullest use may be made of them. Only through the closest coordination and interpretation of the needs of industry to these agencies can they render suitable preparatory and related instruction.

Local Organizations to Be Set Up

THIS *FIELD SERVICE* can be most effectively rendered by representatives of "Training within Industry" working continuously in local areas of the districts in which defense industries are located. Their activities will be carried on under the general direction of a small staff at Washington headquarters, so that the experience in each district will make a contribution to the program as a whole.

The field organization will be based upon the 12 Federal Employment Service Regions, and set up in some 20 Districts as follows, according to the most important industrial centers. Field experience may result in a smaller or larger number of districts.

- | | | |
|------------------|----------------|-------------------|
| 1. Los Angeles | 8. Chicago | 15. Philadelphia |
| 2. San Francisco | 9. Detroit | 16. Rochester |
| 3. Seattle | 10. Cleveland | 17. Newark |
| 4. Denver | 11. Cincinnati | 18. New York City |
| 5. Houston | 12. Atlanta | 19. Hartford |
| 6. St. Louis | 13. Richmond | 20. Boston |
| 7. Minneapolis | 14. Pittsburgh | |

Organization for Each District

IN EACH district the organization will be about as follows:

1. One district representative borrowed from industry because of his experience and standing in this field of work.
2. One training consultant.
3. One office assistant.
4. A panel of ten or more personnel and training counselors borrowed from industry on account of their knowledge and experience, to be available on call as needed.

All field staff will receive "per diem" expense and travel payment while serving the Defense Commission away from their home stations.

5. Four advisors, two from labor and two from management, will be selected on account of their background and experience in dealing with such problems within manufacturing industries. They will assist the district representative in anticipating and meeting training problems in their areas, and also will be helpful in creating and maintaining public interest.

The study, here reported, of ways of obtaining sufficient skilled workers for defense industries is contained in the October and November issues of the Personnel Journal.

Part I, (October 1940) dealt with:

SKILLED WORKERS FOR DEFENSE INDUSTRIES
 HIRING SKILLED WORKERS
 UPGRADING SKILLED WORKERS
 SPECIAL EMERGENCY TRAINING
 PROGRESSION TRAINING
 TIME TAKEN TO LEARN JOBS
 SELECTING MEN TO BE TRAINED
 SKILLED LABOR SUPPLY INVENTORY

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CHARLES S. SLOCOMBE, *Managing Editor*

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The New York Times Index of Business Activity, for the Week ending November 23, Rose above the Previous 1929 All-time High. Yet the Defense Program Has only Just Started. What will Happen when It Reaches Its Peak?

Social Changes 1941 *and* After

By CHARLES S. SLOCOMBE

Personnel Research Federation,
New York, N. Y.

THE national defense program, calling for the employment of six to eight million additional workers, and virtually abolishing unemployment, at least temporarily, presages a major social change in America.

Judged by experience in European countries, where employment has expanded as a result of the war, it does not however seem that we shall return to a laissez-faire psychology, as of 1929, even though industrial and business activity will be at a higher level.

Social Benefit Programs Liberalized

IN THE European countries, whether democratic as France and England, or totalitarian as Germany, Spain and Italy, social benefit programs, such as health insurance, regulation of hours and wages, unemployment insurance, pensions, etc. have all been increased in liberality, and coverage, in the interests of the working populations.

While America does not follow European patterns, it seems likely that our experience will parallel theirs, though not without conflicts—such as have taken place in those countries. Germany, France, England and Japan, for instance, have all tried to lengthen hours of work and restrict wages, but have had to withdraw or modify their restrictions in the interest of worker and national efficiency. They found that the psychological effects on workers was to destroy their morale and increase their fatigue.

Dr. Harry A. Millis, on being appointed to the National Labor Relations Board, is quoted as saying that he thought that, if necessary in the interest of

defense, restrictions on hours of labor in America might be removed, so that workers could work 10 or 12 hours a day.

This statement was made in spite of the fact that the results of many years study of hours of work by the British Industrial Health Board show that, while workers may maintain their efficiency for a few weeks, when working 72 or 80 hours a week, they quickly drop their output, due to fatigue, so that very soon they do no more in 72 hours than they would do in 56 or 60, but have to be paid, at overtime rates, for the longer hours.

Hours Cut Back to 56 per Week

IN SPITE of the findings of their own research agency during the last war, and since, when the present war first started, English defense factories, with the permission of the government went to long work weeks of 72 hours and upwards. Practical experience has made them reduce hours in most industries to 56 per week. (This is distinct from the fatigue effects caused by sleepless air-raid nights.)

This example, and the idea of Dr. Millis, are mentioned to indicate that the maintainance of efficient social work standards here may not be obtained without conflicting views and struggle.

On the whole, it seems that America will, in 1941 and the immediately following years, due to the defense program, return to a state of intense business and industrial activity even greater than that of 1929. This change from the hopeless years of the recent depression will have profound psychological effects.

Questions in the Public Mind

PERHAPS the most important of these is the question which will stay in the minds of people all through the period, "What will happen when it is all over?" "Will I have to go back on relief?" "How can I select an occupation, or get into a job that will last?"

These questions will have a tremendous effect on the energy which workers will put into their work; on their decisions as to whether to join labor unions or not, which labor union to join, which way to vote on questions of union policy; and on their views as to desirable governmental legislation.

Possible aids in answering these questions seem to lie in the following points.

Studies made by the Personnel Research Federation for the New York Adjustment Service, and the National Occupational Conference, showed that in industry generally there is a tendency to increase the number of very highly skilled employees, and of very lowly or unskilled workers.

Intermediate grades, of semi-skilled workers, are in general decreasing, as employees in manufacturing industries. This trend seems to be continuing, limiting the opportunities for employment of high school graduates in industry, but increasing the opportunities for well trained graduates of technical schools.

These trends apply to industrial employment only. In business and commercial fields the opposite seems true. There is a general tendency to hire high school graduates who will attain at least middle class status, and a proportion of whom will go higher.

Studies made by the University of Pennsylvania (under the direction of Miss Gladys Palmer) seem to confirm Federation findings, in part, in that she found that during the depression over 83% of skilled machinists in the Philadelphia area retained employment (some of course working short hours part of the time).

We have had considerable experience during this period in aiding high school graduates to obtain jobs in business in and around New York. They found little difficulty in finding them when their qualifications were properly presented.

Best to Acquire High Skill

IT WOULD thus seem that the best insurance, for those capable, against loss of job when the defense boom is over, is to acquire a high degree of skill either in manufacturing, as machinist, toolmaker, millwright, etc., or in business, as stenographer, bookkeeper, accountant, advertising copywriter, etc.

Persons with these skills, while they may find difficulty in securing permanent employment, as business may fall off, or during the next depression, should at least be able to secure partial employment in private industry. Failing that their skills would be invaluable in the administrative and directional sections of governmental work agencies.

More specific recommendations are hard to make. The uncertainties of the future make actual trend lines of job opportunities, except of the most general sort almost worthless. We do not know what sort of development is going to take place after the war is over.

Hitler recently announced that he was getting plans ready to build six million homes, to provide employment for demobilized soldiers, and workers now in war industries, when it is over.

In America we have a housing problem. Are we going to use the workers who will be released from defense industries and business, on an expanded housing program, its management and financing? Are we going to lend money, as we did after the last war, to European countries so that they may purchase supplies from American manufacturers, to rebuild Europe? If so our machine and metal trade industries will expand, and also business houses dealing with banking and finance. Are we going to try to expand our exports of agricultural commodities? If so, problems of finance, sales and foreign marketing will become important.

We do not know which of these things will happen. Yet the one which does, or the ones which do, will determine job opportunities for workers who have now to try to decide how best to continue to be employed in the next depression. In the absence of aids to such decision workers will flounder around—particularly younger

ones, and not be motivated to prepare themselves for anything, except reliance on the government.

In addition to acquiring skills of as high an order as possible, in view of the attitudes of workers, there seems to be another aid to job security. True as it may seem to some, this answer lies in the tradition of American development. When our pioneers exhausted the possibilities of one community or state, they moved west to another, and so created more communities. They have gone to the Pacific Ocean, but can go no further, geographically.

Tread the Pioneer Path

BUT why can modern young Americans not tread the same type of pathpsychologically? Why can they not create and initiate as their forefathers did? How? Let us quote an example.

Each year the University of California holds a series of meetings for ensuing graduates, at which representatives of business and industry sit down with the students, and give them some idea as to what the working world is like.

We were invited to sit with such a group of students to help them. On one occasion there was present a most despondent boy, who was taking courses in finance, accounting and banking. His despondency was due to the fact that he hated the idea of going into a bank, and sitting on a stool all the rest of his life.

We asked him what work he had done, and after much questioning found that, in college recesses, he had worked as a lowly picker of peas and lettuce in the fields. Taking this as a starting point we asked him whether he had noticed or thought the farmers he worked for kept good accounts, as to their costs in preparing their crops, for seed, fertilizer, for harvesting, labor, etc.

He said that their ideas of farm accounting were rudimentary or absent in many cases, and that some of them were obviously working all year to get no return for themselves.

We suggested that, instead of glueing himself down to a hated bank stool for the rest of his life, he set himself up in a farm community, as a farm accountant or bookkeeper, to aid the local farmers to put their farming on a business basis.

Job Creation vs. Dependence

WE DO NOT know whether he did so or not. But, if he did, that would have been in the spirit of job creation along American lines of development. It would have been in distinct contrast to the ideas of many youths, who apply for jobs they do not really want in companies who do not want them, but who are sour when they do not get them. When a youth applies for a ready made job in a company he does not realize—nor do many social thinkers—that the job has been created by some executive in the company. Jobs of that sort being short, it is up to the youth to create his own job.

The experience in the University of California, which is but one of many such, seems to indicate that many students could be led into something creative, along American lines, if they would use their initiative. The psychological barrier of dependence on someone else to create jobs for them would thus be avoided.

Views of Social Service Workers

How far can this type of job creation alleviate the unemployment problem, as it seems likely to develop after the defense boom is over? Many social service workers and vocational counselors do not think it can have much effect.

They, with their daily contact with job seekers, know the practical conditions. They point out that most of those who come to them, especially those from what are called underprivileged families, are lacking in background, abilities, qualifications and initiative.

To think of these applicants as doing anything more than an average performance in a job made for them, by private industry or the government, they say, is academic theory. This proportion of the population must always be dependent upon someone or some institution to provide ready made jobs for them. Unquestionably this is true.

But all should not be judged by this fraction, even though it be a large one. It is vitally important for the progress of American democracy that whenever and wherever possible, for those who have the native talents, education and initiative, stress in vocational counseling should be laid on the job creating concept. This would leave more job opportunities for those who can fit only into ready made jobs.

Causes of Pessimism

THE views of these social service workers and vocational counselors may be influenced to be unduly pessimistic about the possibilities of job creation, by two factors. (a) More enterprising youths do not seek their assistance. So counselors and placement workers do not come into contact with the optimism of the "cream of the crop" of school and college graduates. (b) Their daily contact with the other fraction is a hopeless endeavor to aid them in getting jobs where there are no jobs. This would depress and influence the judgment of the stoutest heart.

Yet it is vitally important for the preservation of the nation's morale, during the post defense boom period, that the tendency to overlook the possibility that policies and practices of the last depression period were developing a dependence psychology among certain sections of the population, be not repeated.

More Strikes Inevitable

THE social changes of the immediate defense boom period are going to develop psychological patterns and problems that will shake the nation.

The employment and induction of millions of untrained workers, with no

previous experience of factory discipline is going to place a load on industrial management that many companies will find hard to carry. There are not enough employment managers, training directors, and other personnel men in the country to properly select workers, assign them to the right jobs, train them expeditiously, work out suitable wage incentive plans, or deal with grievances.

Hence there will be a slowing up of the defense program, with vastly increased labor turnover, with dissatisfied workers floating from job to job, trying to fit into the right niche. There will be a tremendous increase in strikes and labor troubles; unions will have more employees to recruit members from; they will have more money for organizing workers and accumulating strike funds; inexperienced union leaders will ask for impossible things; inexperienced managements (in labor negotiation) will make mistakes in deciding when and how to compromise with unions; companies will be making more profits, and employees will demand a share of them; and some company managements will upset the apple cart by trying to buy the loyalty of employees, with the partially outmoded financial incentive of higher and higher wages, rather than by intelligent personnel work. They will thus disturb the whole labor market.

Public opinion will be a deterrent influence, minimizing the number and duration of strikes, particularly in the defense industries. But unless we actually get into the war, when patriotic motives would be of tremendous strength, the influence of public opinion will be feeble, because it will be divided.

Changes of Last Quarter Century

WE HAVE witnessed the social changes of the last quarter century. Laissez faire in business and government has blossomed and died; business regulation and suppression of graft have come; so has social security for the aged, the unemployed and the blind; farmers have had their incomes stabilized somewhat; workers are protected in their unionization; the government has accepted responsibility for taking care of those who could not get jobs in private industry, through the WPA and home relief; many persons who could not get jobs in private industry have obtained them in the expanded government departments.

And last but not least we have come to realize that there is a possibility of invasion by some outside foreign power.

Conflicting Psychology Evident

THESE are social changes. At their base appears to be a changed psychology. There must have been, yet it is ambi-valent, positive and negative together. The stock broker agrees that, logically, markets should be regulated, yet he hates the regulation; the aged and unemployed are glad of their subsistence allowances from the government, but they hate the fact that they have no option but to accept them; farmers are glad to receive bounties from the government, to tide them over

evil days, but they hate the whole concept of dependence; business executives say that logically they find dealing with labor unions of employees is beneficial, yet they look back longingly to the days when they were not bothered with them; workers debate at length whether unions have really gotten them any more than they would have received otherwise; most of those on WPA rolls and relief, though appreciating the help they have been given, feel a sense of social inferiority, and ardently wish to get back as soon as possible into the more respected ranks of those employed by private industry; and, though doing excellent work in government departments, many of those in Washington look forward to the days when they will get jobs in private industry and business.

Though recognizing the absolute necessity and inevitability of our preparing for the defense of our country and our democratic institutions, we dislike the sacrifices we must make in leaving normal life for military service, in paying additional heavy taxes, and diverting our energies from the normal development of our country.

So we have witnessed social changes, accompanied by a conflicting psychology. The conflict appears to be due to the fact that we are conditioned (used to) to certain lines of conduct and ways of thinking. This conditioning is exceedingly difficult to change. But now there are new social problems, solvable only in terms of new logical plans. We agree to try these, but because of their running contrary to our conditioning, we hate their necessity, and fight their introduction.

Looking into the Future?

SO MUCH for the psychological and social changes of the past twenty five years. What of the future?

In the immediate future we see a defense program boom: six or eight million more workers: jobs for those who have never worked in industry before: wages and a steady income for those who have depended upon a government pittance for years: business executives worrying about hiring rather than firing: a reinflux of farm workers to industrial cities. And perhaps five million young men experiencing the rigors of a year's military training.

What will be the effects of these social happenings upon our national and individual psychology? Will the sobering thought of the inevitable troublous aftermath cause us to try to build our national and individual lives to prepare for it? Or shall we go high, wide and irresponsibly handsome, as we did in 1929, letting the future take care of itself?

Can we see far enough ahead, and with sufficient certainty, to make a specific effort of preparation worth while?

If, in the present struggle of democracies, other than America, they lose, we shall almost certainly see much accelerated effort to prepare for our defense. This will strain our personnel resources, and perhaps bind us into an ideological unity similar to that of 150 years ago, when we gained our independence.

If the democracies win without our aid, other than economic and material, the resettlement and rebuilding of Europe will largely determine our economic and social life. Major readjustments will have to be made as we return from a partial war economy of boom proportions to the slower pace of peace.

While the social legislation of the past decade will help to cushion the effects of this change over, it will be difficult to avoid the hopeless desperation psychology of the last post war years.

What the Individual Citizen Can Do

WHAT can the individual citizen do to prepare for whatever eventualities follow? Can he do anything, or must he just be a "pawn of circumstance?" The last depression tells us that those with properly developed skills, of the highest order possible, by and large, suffered the least—that is those with mechanical skills and skills used in business. Those who added initiative and creativeness to this were even better off.

During the present defense boom period, manufacturing companies and business houses absolutely must spend millions of dollars in training employees in apprentice programs, and specialized courses in business methods. The government and educational systems will also have additional funds for vocational training.

Individual citizens will therefore have an unprecedented opportunity to develop their talents, so that they acquire skills essential to industry, business and government, in good or bad times. Not all will be able to take advantage of these opportunities, but if those who can, do so, the load will be lightened for all.

Psychological Note

THUS a study of current social changes, as they affect job selection and security, while ranging wide over world affairs, comes back to a psychological conditioning, based upon our traditional concepts of individual and national development. But included are elements of specific, or superficial change, in the past, present and future.

From history we know that these elements have caused conflicts, mainly recently of a political nature. Does this mean that conditioning is absolutely specific, or may we hope that it is to a general pattern or 'gestalt,' involving only minor conflicts in adjustment as the social pattern change slightly year by year?

Democracy, as a form of government, appears to be predicated upon the assumption of 'gestalt' conditioning, in social relations.

The National Industrial Conference Board is Reported to be Making a Survey of the Use of Psychological Tests as Aids in Hiring and Promoting in Industrial and Business Companies. Such Tests are Widely Used in Governmental Agencies

Essential Factors in Test Construction

BY WILLIAM T. TOOLAN

Board of Education,
Los Angeles, Cal.

THE Los Angeles city school district realizes the importance of improvement of written tests. It has subjected the results of its tests to statistical studies wherever the number of testees allowed for adequate sampling. The great majority of its tests have been studied for the sake of reliability and some effort has also been expended in the direction of validity.

However, this discussion is intended to stress the need for more careful "informal" examination of test items before and after statistical studies. It also serves the purpose of pointing out the fact that it is not unusual for us to rely solely upon the results of statistical studies without further investigation into the idiosyncrasies of test items.

Too Easy

AN ITEM missed by none is, of course, non-selective. However, the item may be retained and placed at the beginning of a test as a "shock," or "warm up" item. If the construction of the item is such that the answer is quite apparent, this will have been the reason for its non-selectivity. This being the case the item may be rebuilt and prove to be, when given another trial, highly selective.

An item missed by very few persons, that is about one or two per cent, may be labeled as too easy. This may hold true if the misses are above or below the median score. In all examinations some misses are due to accident such as mental aberration occurring at the instant the answer is being recorded by the examinee. Then, too, there is the element of chance, due to guessing, which is present in short answer type items such as the true-false, and multiple-choice.

It is obvious, then, that an item may be missed by a few persons whose scores are above or below the median score, and be questionable as to its effectiveness or ineffectiveness in an examination. For this reason, it is well to "disqualify" this item or "rebuild" it if its construction is faulty.

Too Difficult

IF AN item is missed by individuals whose scores are about equally distributed above and below the median score, and the great majority of the examinees have missed the item, the probability is that the item is either too technical or inappropriate to the extent that it is foreign to technical knowledge needed in the field.

Should the item be missed by a great majority of the examinees, most of whom are above the median score, it may mean that an incorrect choice was inadvertently marked when making up the scoring stencil, or when the item was built.

Too difficult items should be analyzed carefully, particularly if their coefficients of correlation are low. Items which are missed by a great majority of the examinees, of course, are quite unpopular, and are often the cause of complaints. This fact does not imply that all items which are missed by a great majority of examinees should be discarded.

The fact that some examinees with very high scores marked the item correctly indicates that the item had a tendency to select examinees well informed within the limits of the examination content, and perhaps that the examinee knowing the answer also knew information "all around" this item. In other words if the item pertained to Round Head Brass Machine Screws, and the examinee marked it correctly, we should assume that he also knew something about other types or styles of machine screws.

Unreliable Coefficients of Correlation

IN MULTIPLE-CHOICE test construction we often see items which are ambiguous, choices too close, choices too far apart (answer apparent), two or more correct answers, etc. These, in a so-called perfect test, amount to about five per cent. They are often called "bugs" and can be eliminated only after many trials with proper sampling, and of course correct statistical procedure. Even after statistical studies, items should be given careful study.

Here is an example of an item which, after statistical study showed a high coefficient of correlation, yet was faulty. The item was a 5-way multiple choice. When it was constructed, the examiner inadvertently put into it two correct choices. Choice number one was indicated as the correct answer. Number four, however, was the other correct answer. A careful analysis showed that examinees with high scores marked the first correct answer. Further study showed that number four choice attracted quite a few examinees of mediocre scores. This was unusual because the item was of the type which called for the correct and not the most nearly correct answer. It asked for readings from an accompanying chart.

There could be only one explanation. The better informed examinees marked number one and did not spend the time to read the other choices. They were sure of the answer, and furthermore they saved valuable time because the test was "under time."

Here is an example of an item which was *not* faulty, yet showed up in statistical studies with a low coefficient of correlation. The item pertained to smoking on school property. The group responded to the choice which said "There is a State Law against smoking on school property." There is a general belief among people that this is so. Although the State of California has no such law, school districts post warnings prohibiting smoking on school property. These are backed by policies or rules.

Many instances could be given to show how general belief could be the controlling factor in answering an item. If the examiner believed that there was a State Law prohibiting smoking on school property and marked this choice, the item would have shown a high coefficient of correlation, yet be faulty!

Value of High Correlations

A well balanced test should have items of all degrees of correlation, except the very low correlations. An item might well be appropriate and essentially a part of a test and have a low correlation. The degree of correlation depends upon the subject matter, the group, and the construction of the item. Of course we assume that the item will change its degree of correlation considerably if used for instance in a carpenter's examination when it was originally designed for a clerk's examination, or vice versa. We usually point with pride to our examinations having many items of high correlation. However, experience has shown us that examinations which correlate high with practical or performance tests do not have a large number of items of high correlation.

Because we seemed to be unable to fail very many examinees in our last carpenters' performance test we assumed that the written test might be both reliable and valid. Further study showed that there existed a high degree of correlation between the written scores and performance scores. This correlation, no doubt, would have been much higher had we subjected all of the examinees who took the written to the performance test.

Selectivity Varies with Style of Item

OF THE various kinds of multiple choice items some seem to rank higher in degree of correlation than others. Study by observation over a period of time indicates that items of multiple choice of the following kinds generally show high coefficients of correlation:

1. REASONING PROBLEM

Z is older than X, and W is younger than Y. Y is older than X, therefore (A) Z is younger than X (B) Y is younger than W (C) W is older than Y (D) Z is older than W (E) Z is younger than Y

ESSENTIAL FACTORS IN TEST CONSTRUCTION

(2) REASONING IN ARITHMETIC:

A rope is 51 feet long. If you cut it so that you have two pieces and one piece is one-half as long as the other, how many feet long will the longer piece be? A, 21 B, 34 C, 17 D, 40 E, 39

(3) FACTUAL:

Sodium chloride is (A) a deadly poison (B) a chemical used to poison snails (C) common table salt (D) a gas (E) hot ice

(4) INTERPRETATION OF SUBJECT MATTER:

"No school bus operator shall work as a school bus driver or operator for more than 10 hours in any 24 hour period, and no driver shall do more than 12 total hours of work in any 24 hour period, including the driving of a bus and any other work." According to this (A) school bus driver shall not be worked overtime (B) anyone driving a school bus shall not be allowed to work more than 40 hours in any one week (C) the maximum number of hours that a school bus driver works in 24 hours, at driving work, together with other work is 12 hours (D) a bus driver may operate his bus not to exceed 12 hours in any given 24 hour period (E) if a bus driver drives 12 hours in any 24 hour period, he may be allowed time off the following work day

(5) WORD MEANING:

Gregarious means (A) love of offspring (B) grotesque (C) gruff (D) liking for one's kind (E) unusually queer or strange

(6) DESCRIPTIVE NAMING:

"This shrub usually grows from four to six feet tall. When in bloom it is covered with myriads of tiny coral colored flowers." Which of the following names best fits this description? (A) Celocia (B) Lobelia (C) Leadwort (D) Abelia (E) Argentia

Probably the reason for the high selectivity is that all, perhaps with the exception of Nos. 4 and 5, are difficult to make faulty. That is, there can be but *one* correct response for each. Then it is probably true that testees having a wide scope of information also generally have more ability to reason than those not well informed.

Reasoning and Recalling

IT is interesting to note that these items can readily be classified into two groups, one of which requires a present knowledge of or ability to recall the answer, and the other a question of ability to reason only. 3, 5, and 6 are of the former and 1, 2 and 4 the latter type.

Each of these types (content) will vary in its degree of correlation depending upon its wording, construction, and degree of difficulty for the group. However, they can more often be relied upon to render greater selectivity than other styles such as the following:

(1) METHOD OR PROCEDURE:

When a child habitually torments younger ones, you can often help him most by (A) telling him to leave other children alone (B) interesting him in a game with children of his own age (C) refusing to give him supplies (D) excluding him from the playground (E) having him direct the activities of smaller children

1. ORDINANCES, LAWS, ETC.

The Board shall hold a hearing on the budget, in accordance with the school code, and then shall submit said budget as finally adopted with any changes therein to the (A) Director of the Budget (B) Superintendent of Schools (C) State Director of Public Instruction (D) County Superintendent of Schools (E) Civil Service Commission

2. SITUATION

Not infrequently, when driving to work, you overtake your chief, who lives a shorter distance from the office and who you know makes it a practice to walk to work. You should (A) offer him a ride each time (B) speak to him when passing (C) choose another route (D) make it a point to come earlier to work (E) park your car in a location where you can walk to work with your chief

3. NAMING

Which of the following is part of a micrometer? (A) Anvil (B) Spigot (C) Pointer (D) Gauge (E) Indicator

Unless great care is taken, items on methods, processes, or procedures may show low or negative correlations. Working techniques often change, vary from place to place, and are often different with individuals.

Choices Should Be Far Apart

ORDINANCE, law, rule, or regulation items show high degree of selectivity in promotional tests. This is just the opposite in open competitive tests. Being peculiar to the agency the information in the items is too technical in an open competitive examination. The responses are often based on guessing. The chance factor then keeps the correlation low or negative.

A "situation" item includes, as the body of the item, a problem. To be a good item it must have its choices "far apart." If the choices are too close, examinees are apt to inject too much reason, judgment, or debate in to it. For this reason this style of an item seldom appears with a high degree of correlation.

The naming of a tool, device or parts thereof when incorporated in an item of a test to determine aptitude or interest may show a fairly high degree of correlation, but when the item is used in a test it does not necessarily test for ability to perform or verify experience. A tradesman may be able to use a tool and yet be unable to call it by its correct or technical name.

"I Am a Miner, having Spent the Greater Part of the Last 20 Years in the Copper Mines as an Ordinary Miner, and That is My Present Occupation. This Article was Written Without any Outside Help."

A Miner Views Industrial Relations

By E. F. ROWE

Butte, Montana

DURING the past several years an increasing amount of attention has been given the problems involved in industrial relations. The field of such relations has been attacked from many sides by the use of tools furnished by some of the sciences such as economics, sociology, psychology, etc., and it is evident that much praiseworthy progress has been made. However, there are times when it is difficult not to believe that the desire to use the scientific approach to the problem as a whole, or to any one of its component parts, has led to a situation where the workers are placed in the role of guinea pigs to be studied in a thoroughly scientific, but equally unsympathetic manner.

Remote Control

IHAVE no quarrel with science. Its value to humanity has been proven times without number, and its position is impregnable. But its impersonal approach to the problem has, in a great many cases, encouraged a similarly impersonal administration of the solutions offered by science when they are given practical application in industry. In other words, a number of concerns have made the mistake of trying to run their more or less formal personnel programs by remote control, so to speak, with some concerns being far too remote from a functional, as well as a human standpoint.

The sight of a general foreman strolling through the mine yard while the shift is waiting to go down the mine, and speaking to no one unless he has to do so is one which has never inspired any enthusiastic cooperation on the part of the employees.

Idiocy and Dignity

WHILE there is any danger in becoming too friendly with the employees while in the plant has never been proven to my satisfaction, but I do believe that a reasonable amount of friendliness on behalf of management toward the employees is not only desirable, it is positively essential to the cultivation and maintenance of employee loyalty. And the idiotic business of acting with the so-called dignity commensurate with one's position, as indulged by the average lesser executive, has never won an iota of loyalty, especially when so many of these executives take themselves and their jobs so very seriously.

Perhaps a great deal of good could be accomplished if the management of industry were to temporarily lay aside the tools which science has placed in their hands and get at the problem of industrial relations from the human angle. Try talking to the employees as one human being to another, with everything "off the record" if necessary, and above all, without the condescending attitude that so many higher executives seem to adopt almost unconsciously.

It is a strange fact, but true nevertheless, that we humans actually like to be treated as such, and it is a sad commentary on its present industrial relations when a firm has to urge its supervisors to treat the employees more like human beings, and to give them more human consideration.

Old Commodity Concept of Labor

PERHAPS the plea for more human consideration of employees is made necessary by a more or less unconscious carry over of the old commodity concept of labor, but such a concept should be outlawed for more reasons than the humane factor. We of the laboring class have more to offer than a strong back. We have a personal interest in the job and a certain amount of intelligence which can be utilized to great advantage by the employers who are wise enough to make use of it.

In no industry, so far as I have been able to ascertain, is the value of constructive thinking and initiative on the job more pronounced than in the mining industry where conditions are apt to change rapidly, and where the boss cannot exercise close personal supervision over the men. When the boss can visit each working place only twice each shift, and then spend only fifteen or twenty minutes during each visit, it is impossible for him to anticipate each and every situation that may arise.

It is necessary then that the miner use his own judgement to a great extent. But unless a close personal feeling of respect and cooperation exists between the management and the miner, there is little incentive for the use of personal judgement on the part of the miner except that of a financial nature, and even that incentive does not operate effectively at all times and under all conditions.

What Is Employee Loyalty

MUCH has been said and written about the subject of employee loyalty, but little mention has been made as to exactly what loyalty is, where it springs from, or what happens when it is not given an opportunity for concrete expression. Most modern employers, however, recognize it as a potent force which can work to the mutual advantage of both employer and employee when present and active, and to their mutual disadvantage if absent.

Let us view the subject of loyalty as I see it, and as it is outlined in the preceding paragraph. First, what is loyalty? According to my dictionary it is "devoted allegiance, as to a government or friends." Obviously this definition is woefully inadequate, but it brings up a very important point. If loyalty is devoted allegiance to friends, then its entire existence in industrial relations depends upon the presence of a feeling of friendship of a personal nature between employer and employee, and if there is no friendship there can be no loyalty. Friendship, and hence, loyalty, cannot exist in the presence of indifference or antagonism, and it is useless to expect it under such conditions.

Can Loyalty Be Bought?

A GREAT many writers, mostly of the inspirational type, have repeatedly urged employees to be loyal to their employers, but it is doubtful if any amount of urging can produce a feeling of genuine devoted allegiance. Some writers and employers have gone so far as to claim that a portion of the wages received by the employee is, in effect, payment for his loyalty. But I have yet to see an employee's wages docked because his employer did not receive as much loyalty as he thought he had a right to expect. The employee may have been fired for an infraction of company rules, or for laziness, or insubordination, etc., but never penalized for lack of loyalty, so long as he did his work in a satisfactory manner. And loyalty is not a prerequisite to satisfactory work, as the most ardent revolutionist can turn out as good work as any normal person. I have worked around them and know from experience.

From whence does loyalty spring? It is my earnest belief that every human being has within himself a certain capacity for loyalty. Whether this innate capacity can be enlarged is not important from the standpoint of the present discussion. It must be admitted, of course, that the capacity differs in different individuals, and that perhaps few men are entirely aware of the capacity or the need for expressing it in some tangible way. Unconsciously, however, most persons seek for, and generally find some avenue of expression, sometimes in loyalty to church, political party, a reform movement and/or in any one or more of a great many activities.

Bases for Loyalty

THE business of securing a livelihood for himself and family is just about the most important activity in the life of the average man, and it is only natural that such a matter should assume major proportions in his life. And the activities which are most important in the life of the individual are the activities which can normally call forth his most active loyalties.

If a person's greatest concern is for the hereafter in preference to the "here" he becomes intensely loyal to the religious organization of his choice and to its doctrines. If, on the other hand, he is more interested in securing the creature comforts of this life, he is much more apt to be loyal to the organization which makes such comforts possible. And most of us are of the latter type.

Here, then, is the crux of the whole situation. On the one hand there are those who unconsciously or otherwise seek to find adequate expression for this urge for loyalty to the economic organization which is so important in the life of the individual, and on the other hand there are the all too prevalent factors which make such expression impossible. Employers do nothing, or not enough, to offer an effectual means of satisfying the urge for loyalty on the part of their employees. The result of this lack, in its most benign form, is merely suppression.

Changing a Radical Troublemaker

BUT human beings are not capable of suppressing natural urges entirely, and if the urge fails to find outlet in one direction, it generally finds an avenue of escape in another, and more often than not, in the opposite direction as the first, more natural direction. Thus is found the reason why so many men become radicals of one kind or another. Many of them become so not because of a sincere belief in these "isms" but because this inherent loyalty must find expression in one way or another. This fact has been proven a number of times in which an intelligent supervisor has changed a radical trouble maker into a loyal employee simply by tying in his active loyalties with those of the firm. The job was doubtless not an easy one, but the mere fact that it was attempted, and accomplished in a great many cases, is ample proof that the results were thought to be well worth the effort involved.

In the above you have the answer to the question, "What happens when the urge for loyalty is not given an opportunity for concrete expression?" If denied expression in one form, it finds it in another, and whether the alternative form is positive or negative in character depends to a large extent upon the temperament of the individual, his interests and his environment, particularly his workaday environment.

Bootlickers

THE average miner would scoff at any mention of loyalty to his employer. Such a term as "loyal employee" would doubtless be reserved for use in connection with an employee who was suspected of "carrying tales" to the boss or who appeared to be of the "bootlicking" variety, to use a very mild term in a miner's vocabulary. But on the other hand, few miners will hesitate to admit that it is only fair and proper for an employee to actually go out of his way to accommodate a boss who is genuinely interested in the welfare of his men, and who does all he can to cooperate with them. And cooperation, after all, is simply the outward expression of inward loyalty.

The Man in the Dirty Blue Shirt

MANY of the so-called problems of industrial relations would be completely solved if the Golden Rule were given a little more application in industry instead of being remembered only during Sunday church services. Mr. E. S. Tillinghast expresses the idea very aptly in this way. "Treat the man who wears a dirty blue shirt just the same as the man who wears a clean white one. The human nature underneath is just the same, and in almost every man you will find some trait, some knowledge or some accomplishment which, in that respect, makes him superior to yourself. Only a small man need fear that he is lowering his dignity (another much abused thought) by letting the man under him know that he admits this."

Too many executives make the mistake of imagining that because we work hard with our hands and backs for our living that we are sort of "thick headed." Then they carry this mistaken assumption still further by assuming that we are "thick skinned" as well. It has evidently not occurred to them that it does not require any great amount of intelligence and sensitiveness to appreciate and be influenced by courtesy, the respect, the friendship, the loyalty and the cooperation of management. In fact, it is entirely possible that such things might influence us more than it would those of more exalted rank, we encounter them so seldom.

The effect of such treatment by management might be compared to the effect of alcohol on different persons. One glass of whiskey would have little effect on one who consumes considerable liquor, but it might place a teetotaler in a very hilarious state.

After all, the great majority of employees are quick to respond to courteous treatment by their supervisors, and when the management assumes the initiative, as it should, and clearly demonstrates to the employees that it is sincerely interested in their welfare, and displays a desire to cooperate whole-heartedly in all matters that are of mutual concern, it is not long before the employees follow suit to the

extent that much of the friction that was formerly thought to be inevitable is no longer met with.

Most employees recognize the rights of the owners or stockholders, the management, the customers and the general public. It is only when they believe their rights as employees and as human beings are being violated that they forget or ignore the rights of the other parties and make demands that seem unreasonable to disinterested persons.

Ten or Fifteen Percent Raise?

IF, IN A concern where there is no employer-employee cooperation, the employees demand a ten per-cent increase in wages, and get it, there is nothing to prevent their assuming that they could just as well have demanded a fifteen per-cent increase. If a spirit of genuine cooperation existed, I would not go so far as to say that the management would have raised the wages voluntarily, but it is reasonable to believe that if the management told the employees that ten per-cent was all it could afford to give under existing conditions, the employees would be justified in accepting that statement as a fact, and there would be no reason for believing that the request for an increase in pay was too modest and that more could have been obtained.

Pressing Advantage beyond Reason

THE reader should get the impression that I am condemning management alone for the unsatisfactory labor relations that exist in so many concerns throughout the country, let me hasten to correct a misapprehension, for such is not the case. Both labor and management have been guilty in the past, and are still guilty of lack of consideration of the problems which confront the other fellow.

Each side has been guilty of pressing any advantage it may have gained beyond a reasonable point, and has refused to compromise when compromise was the intelligent course to take. It seems to me that industrial relations are no different from other human relations. It is simply a matter of give and take, with both sides giving and both sides taking.

I cannot help but feel that when the present world conflict is over a serious crisis is inevitable with its natural resultant unemployment and all the human misery that goes with it. When that happens, there will be the usual hordes of agitators of all kinds and degrees. Those of the working class who are more gullible than the average will listen with open minds to these self appointed saviours of mankind, and regardless of what they may or may not do, these false prophets represent a constant menace to American ideals and the American way of life.

Relation to National Affairs

I HAVE no desire to see any foreign "ism" secure even the smallest foothold in this country, for in spite of its few faults, it is still my country. Employers can do a great deal to forestall the success of the agitators by meriting and cultivating the active loyalty of their employees. A loyal employee is practically immune to all types of foreign propaganda, and his loyalty is the best insurance obtainable against unwarranted labor disputes, if it is genuine two-way loyalty. Otherwise it is worse than useless, as it is quite apt to do more harm than good when the employees discover its fictitious nature.

At this time when so much of our attention is being focused upon the European and Asiatic enemies of Democracy, it might be well to remind the reader of the enemies that are in our midst. By the latter, I do not refer to the "Fifth Columns" and the "Trojan Horses." I refer to the misguided proponents of the American way of life who contentedly shout "All is well" when all is far from being well. I refer to that particularly dangerous enemy of Democracy, the industrial executive whose sole purpose in life is to produce dividends and more dividends for the stockholders, and to hell with the help.

There is no gainsaying the fact that all of the parties in modern industry are entitled to a just consideration, but not until the rights and privileges of each party are balanced against the rights of the other parties and modified where modification is needed will we ever be able to bring industrial relations up to the high plane to which it is entitled.

When the Next Crisis Comes

WHEN the next crisis comes, Democracy will have to be strong indeed to withstand the effects of the so-called "Captains of Industry" who would violate almost every humane American ideal in the mad scramble to pile up profits at the expense of labor and the public in general. These, and the lesser fry of the same category, are the ones who make employee loyalty virtually impossible. They are the ones who largely nullify the advances made by the more enlightened concerns, and do much to place the entire subject of modern industrial relations in disrepute. And they are the ones who drive loyal, or potentially loyal employees to the other extreme by their almost complete lack of human understanding and consideration. We, of the laboring class, can consider ourselves fortunate that this type of employer is not as numerous as it might be.

One of Our Constant Problems is to Devise Better Methods for Improving and Evaluating Our Personnel Policies and Practices. The Method Here Described is a Scientific Aid to Its Solution.

Work-Time Analysis

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TO MEASURE, increase and control the efficiency of workers, management is concerned with the causes of efficiency, and the effect upon it resulting from attempts to deal with these causes.

Studies of movements (1), fatigue, and boredom, explain some of the causes of efficiency, while time studies (2) measure their effect. Fundamental to the use of these means, and to a new technique explained here, is the fact of worker differences and fluctuations in productivity on similar work.

Time Study and Personnel Management

THE measurement of work by means of time study has often been regarded as the very basis of scientific management. It is important therefore that this basis be examined in its essentials, and that its relation to personnel management be clearly determined.

Research on the human factor has been rather neglected, according to such investigators as Stanley Matthewson (3), J. David Houser (4), Whiting Williams, Elton Mayo, and others. They advocate that we must learn to deal more effectively with the human factor at work. In his efforts to increase efficiency in work Frederick W. Taylor (5), some fifty years ago, also stressed the need for a scientific consideration of the worker. Yet even today many personnel policies and practices are not properly evaluated. This is due to the intangible aspects of the subject, and by the lack of measurement methods which properly relate to the causes of efficiency. The advantages of such a measuring technique to personnel manage-

ment of manual repetitive work, would also apply to some extent to sales and office personnel management.

At present the only procedure available for checking policies and practices is based upon improperly related measurements of performance. For example, if selection procedures (or procedures of training, or of motivating workers) are to be evaluated, the only measurement available is a comparison of the average performance of each of two groups of workers, similar in all other general personnel characteristics except in the factors stressed by differences in selection (or training, or motivation). But unless the work environment and the methods of work have been properly standardized it follows that performance differences between two groups may be caused by the differences in environment or method, rather than in personnel.

Untested Assumptions

IN SUCH a case the differences in performance cannot be definitely related to the three major personnel factors: selection, training, and motivation for work. Furthermore, even if the two groups of workers (on similar work and in similar environment) are using a standard method, comparison may still be invalid. If such comparison is to bring out significant performance differences and relate them to two different selection (or training, or motivation) procedures, it must be assumed that training and also motivation (or all other influences) are similar for the two groups. In the absence of measurements or judgment of these specific personnel factors this similarity remains an untested assumption.

The problem is then to provide a better procedure for improving and evaluating personnel policies and practices. The basis for this procedure, the author believes, is the analysis of the Work-Time Distributions as explained in the following pages.

Analysis of Differences in Efficiency

THIS technique was developed through finding logical causes for work-time differences. To arrange time study values into frequency distributions (6) is an old procedure, but to clothe its characteristics with significance is new. The discovery of this significance was made by analysis of time study data, as follows.

A time study (2) of repetitive manual work provides a record of performance times on any part of an operation. Such a part is called an "element" in time study practice, and is generally defined as a distinct subdivision possible to time with a stop watch or other suitable time measuring device. The time for such an element is called a "work-time".

These work-times are often quite different for the same element, although repeatedly performed by the same worker. For example, if a typist were to fill a page evenly with the same letter it would be found that the time for each identical line would occasionally be different.

These time differences indicate that even for simple repetitive manual work, giving identical results in work performed, the movements used are not always purely repetitive and identical. Motion study (7) shows how the movements differ in kind, paths, speeds, and sequences, and that complex work increases these movement differences, and shows greater time variations.

The science of difference and economy in manual work must explain the causes of these variations in performance. It must be known why these movement differences occur, and how they may be utilized and controlled. Valid explanations may be obtained by logical analysis of characteristic differences in performance, since it is evident that it alone can objectively express the influences causing these time variations. Such analysis must also deal with the entire work situation and its parts.

Combined Influences in Work Situations

A WORK-SITUATION may be defined as a dynamic combination of influences, which result in a certain efficiency. These influences, on the basis of the usual distinct approaches by industrial psychologists (1) and by motion and time study engineers (2) are classified into three groups: environment, method, and worker.

The work-environment may be defined as all influences upon work-times not caused by the Method or the Worker. Such influences are: kind of work, quality and quantity requirements, management policies and practices concerning the selection, training, and morale of workers, and the general conditions of work.

The method may be defined as any distinct and direct means of performance used by the worker, such as materials, machines, and equipment, tools, instruments, general lay-out of work area, kind of movements, and their sequences. Significant changes in environment or method are objective and easily seen.

Motivation, Habituation and Aptitude

THIS is not true of the worker's influence upon efficiency, which requires greater emphasis and analysis. The worker's performance is influenced by his motivation, habituation, and aptitudes for the work. These terms will be defined in discussing Chart 1, but may temporarily be looked upon as follows; motivation, positive or negative, which increases or reduces the native movement speed; habituation increases the similarity of repeated movements and of their speeds; and aptitude is the basis of the native movement speed.

The analysis and description of the work situation and its main parts, show the causes of differences in work movements. It shows why they can occur. The next step is to measure when and how these differences occur, and to relate these explanations to the measurements. For this reason the different work-times for each element are arranged into a frequency distribution (8), as in the accompanying charts. Such frequency distributions always have the following variable charac-

teristics: skew (onesidedness or lack of symmetry), deviation (width or range) kurtosis (peakedness) and a minimum value. These four characteristics can be related to the several influences upon time, previously discussed, provided certain controls are established.

So a work-time distribution is a frequency distribution of a specified number of work-times, obtained by means of time study on a series of elements in repetitive manual work. For explanations of the technique refer to the accompanying charts, which illustrate the procedure for relating each main influence in the work situation to one of the characteristics of a frequency distribution.

Value of Method

THIS procedure is essentially that of assuming a single variable in each case, and of unifying the conclusions. Only by the use of such a necessary assumption is it possible to show how, when, and why a series of times for performing any manual repetitive work characteristically express the influences in the work situation. That this assumption is correct, the explanations logical, the analytical procedure proper, and the conclusions sound, is made evident by many fruitful applications of the technique.

Fundamental problems are solved, and controversial concepts clarified in the related fields of time study and personnel. It is important to combine the two fields as closely as possible, so that the total work situation is adequately analyzed and effectively improved. Of course, the technique must be applied with judgment, and only where the importance of the work situation warrants its use.

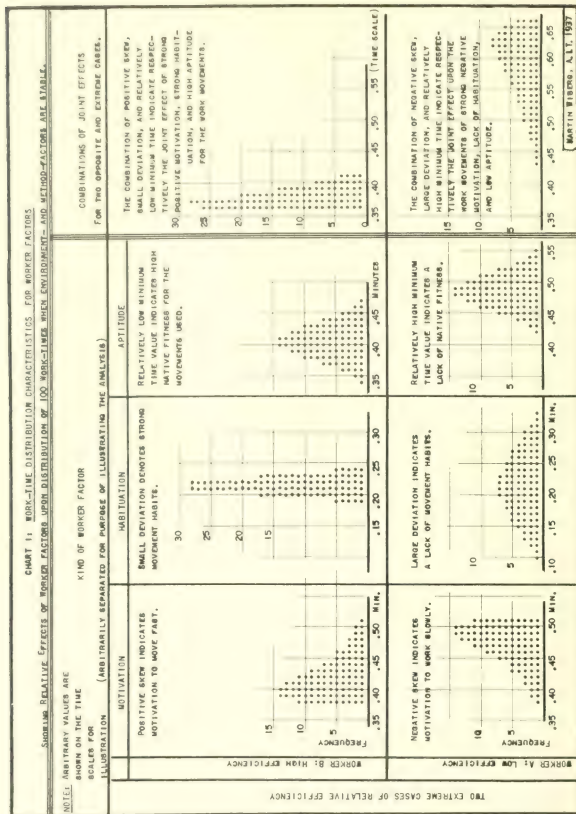
Two Workers Compared

CHART 1 (page 220) shows that if the method, and the environment, are standardized and held constant, it is possible to deduct how the worker influences performance times and determines the distribution characteristics. The motivation, habituation, and aptitude of two workers, A and B, are shown in Chart 1 in separate distributions for the purpose of better illustration. The three influences are also shown combined in one distribution. The latter retains the three distinct characteristics of skew, width, and minimum time value.

In this chart the distributions of output of workers "A" and "B" are compared, and the following reasoning and conclusions developed. First, strong motivation to work, or great "will-to-work-well", (as with B) results in faster movements and so lower time values are frequent in his distribution. Weak motivation for work, or such strong motivation against it (as with A) involves "soldiering" or restriction of output (3), and results in slower performance, and higher time values predominate. The predominance of either low or high work-times give, respectively, a positive or a negative skew to the distribution (10).

Consequently, with the work method and environment standardized, the type

CHART 1: WORK-TIME DISTRIBUTION CHARACTERISTICS FOR WORKER FACTORS
 SHOWING RELATIVE EFFECTS OF WORKER FACTORS UPON DISTRIBUTION OF 100 WORK-TIME WHEN ENVIRONMENT- AND METHOD-FACTORS ARE STABLE.



and degree of skew is a logical indication of the type and degree of motivation for the work. Second, strong habits on the required movements result in a very uniform or nearly automatic performance (as with B), and therefore similar rather than dissimilar time values are frequent. Lack of such habits (as with A) cause a variety of different movements, and result in greatly different work-times for the same element.

The relative width or deviation of a distribution is consequently an indication of the extent to which performance is habitual. Third, high aptitude, or native fitness for the required movements, results in their relatively greater speed, and thus shows a smaller minimum time. Low aptitude results generally in slower movements and therefore in a relatively larger minimum time. (Compare B and A in this respect.)

Causes of Efficiency Diagnosed

AT THE right of Chart 1 is shown the combined distribution characteristics of positive skew, small deviation, and a relatively small minimum time for worker "B". They indicate, respectively, the presence of strong motivation, strong habituation, and high aptitude for the work movements.

This contrasts with the distribution for worker "A", with its combination of negative skew, large deviation, and a relatively large minimum time. These characteristics indicate respectively that worker "A" is strongly motivated to work as slowly as he dares, that he lacks habituation, and that he has poor aptitude for the work. In other words, worker "A" restricts his output, has had very little practice or training, and is natively unsuited for this work. Undoubtedly such undesirable worker characteristics may come from management policies and practices that antagonize or disturb him, neglect his training, or ignore his proper selection for the job.

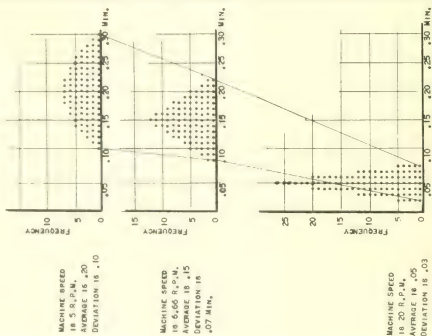
It is very significant that the distribution characteristics can indicate the efficiency of a work situation. An ideal or possible and desirable situation such as shown for worker "B" can thus form the basis for judging the relative efficiency of other workers. If the desired characteristics are not present they can be obtained by changing their causes.

Influence of Machine Speeds

THE work method (11) also influences the distribution characteristics, as illustrated in Chart 2 (page 222). The relative width (deviation) of the distribution indicates the extent to which the manual work of feeding or loading a machine or a conveyor tends towards automaticity by their constant speed. In such a case the worker must, on the average, equalize his performance speed to the machine speed. He cannot for long be much slower or faster, and still keep up with the machine. Slow machine speed relative to the worker, forces him to either pause or slow down, or both.

CHART 2: WORK-TIME DISTRIBUTION CHARACTERISTICS

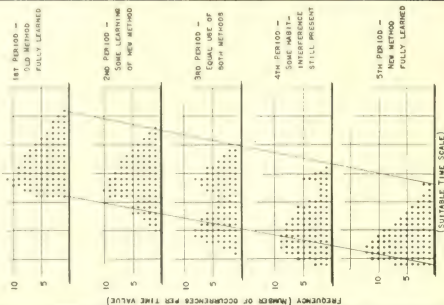
FOR METHOD FACTORS

SHOWING RELATIVE EFFECT OF CHANGE IN MACHINE SPEED
UPON THE DISTRIBUTION OF 100 WORK-TIMES.

MARTIN WIGGS, A.L.T. 1937

CHART 3: WORK-TIME DISTRIBUTION CHARACTERISTICS

FOR METHOD FACTORS

SHOWING RELATIVE EFFECT OF CHANGES IN METHOD
DURING A (HYPOTHETICAL) LEARNING PERIOD UPON
THE DISTRIBUTION OF 100 WORK-TIMES.

MARTIN WIGGS, A.L.T. 1937

These pauses and slow movements increase as the machine speed decreases: intermittent longer rests must always be followed by spurts. The reverse is also true, when gradually increased machine speeds finally approach the worker's physiological speed limit. Whenever this limit has not been exceeded, the faster speed enforces a greater similarity in time values. It is evident that the width of the distribution in this case is determined chiefly by the method (machine speed), rather than by habituation, as in the case of Chart 1. Furthermore, when machine speeds are increased the worker's general motivation to work is not necessarily increased, but rather is better utilized. Thus, identical characteristics of width and of skew lead to different conclusions as to their cause, depending upon the known circumstances.

Analysis of Learning

ANOTHER example shows the effect upon skew and width by a gradual improvement in method during learning period. Usually the easiest movements and sequences are the fastest. As simpler and shorter movements are discovered and used, the work-times generally become lower. These lower times occur at first occasionally, and later with increasing frequency, until at last they predominate with the new method. In Chart 3 (page 222), a learning period of several weeks is illustrated. During this time five series of time-studies were made. The negative skew in the second period, would according to Chart 1, indicate a lack of motivation to move fast.

This inference however, does not apply here since the method is being simplified and these changes can be objectively observed and measured. It is possible to generalize upon this basis that infrequent and lower time-values may indicate some occasional aid to the usual performance, such as improvement in method or environment.

The third period, shows two separate groups of high and low time-values, indicating frequent, but distinct aids and hindrances to the usual performance. The two methods are here used equally often, with the new movement habit gradually developing and the old being discarded. The fourth period, with its infrequent higher time-values, indicates habit interference, resulting from the old method, has not yet disappeared. In the fifth period a full adjustment to the new method has been made.

It is important to note that Charts 2 and 3 modify the logic illustrated in Chart 1. The possibility of drawing different conclusions from similar distributions (12) emphasizes the need for detailed supplementary information, and for adequate standardization of environment and method, before reaching conclusions about the worker's influence.

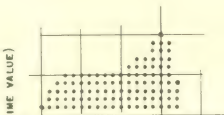
CHART 4: WORK-TIME DISTRIBUTION CHARACTERISTICS FOR ALL FACTORS

SHOWING RELATIVE EFFECTS OF FACTORS IN GENERAL UPON THE DISTRIBUTION OF 100 WORK-TIMES. THE IDENTIFICATION OF SPECIFIC FACTORS MUST BE BASED UPON FURTHER INVESTIGATION OF THE WORK SITUATION.



TYPE A1

PRESENCE OF OCCASIONAL HINDRANCES.
(OR FREQUENT AIDS TO EFFICIENCY)



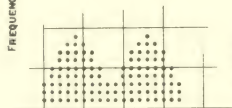
TYPE B1

PRESENCE OF OCCASIONAL AIDS.
(OR FREQUENT HINDRANCES TO EFFICIENCY)



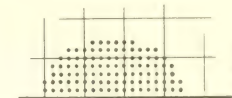
TYPE C1

PRESENCE OF OCCASIONAL AIDS
AND HINDRANCES TO EFFICIENCY.



TYPE D1

PRESENCE OF FREQUENT AND DISTINCT
AIDS AND HINDRANCES TO EFFICIENCY.



TYPE E1

PRESENCE OF FREQUENT AND INDISTINCT
AIDS AND HINDRANCES TO EFFICIENCY.

TIME SCALE

MARTIN WIBERG, A.I.E. 1937

CHART 5: WORK-TIME DISTRIBUTIONS FOR THE FIVE ELEMENTS IN A WRAPPING OPERATION

50 WORK-TIMES.

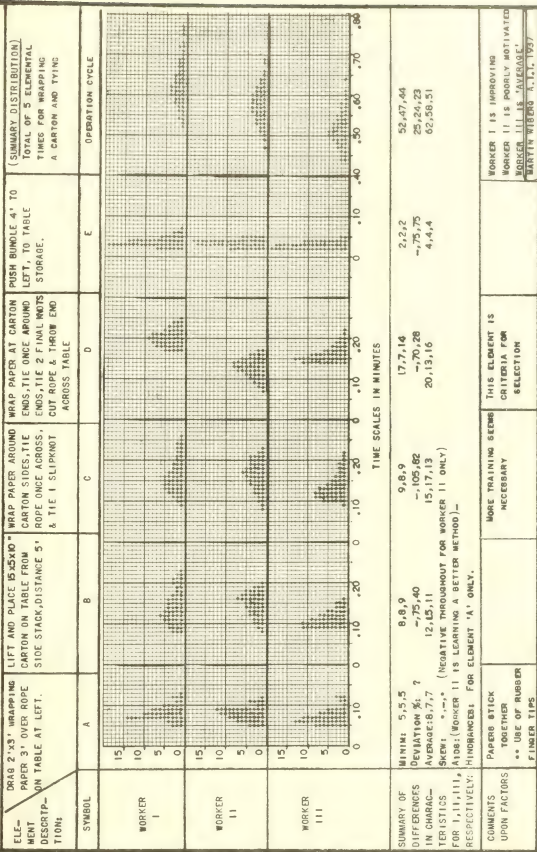


Chart 4 Explained

CHART 4 (page 224) summarizes the concepts based upon Charts 2 and 3. With Chart 3 it shows all the basic distribution characteristics. In general, any influence that significantly decreases the work-times is an aid, such as: spurts, incitement ("warming-up" effect), rest, learning, and greater interest. Any influence that significantly increases the time-values is a hindrance, such as fatigue, boredom, emotions, noise, sickness, hunger, annoyance, distractions, or any other impairment or obstacle to the efficiency of the method, environment, and worker.

Wrapping and Tying Packages

IN CHART 5 (page 225) actual work-times are shown for the repetitive manual operation of wrapping and tying similar packages. The three workers are numbered I, II, and III, and the five operation elements are designated A to E. The environment and the method are generally similar and comparable for the three workers. Also, each distribution contains an equal number (50) of work-times, and their characteristics therefore are comparable. Any differences in these characteristics must therefore be caused by worker differences only.

Analysis on this basis shows workers I and III as strongly motivated to work, since all their distributions are positively skewed, and not caused by occasional hindrances in environment and method. But the distributions for worker I also indicate some general aid, such as a learning situation. Investigation showed that he was quite new on the operation, and occasionally used simplified movements. Worker II has a negative skew on most of his distributions. This indicates, according to earlier discussion, that he either is learning a better method, or restricts his output, or has occasional aids from the environment.

Investigation disclosed neither an improved method nor any other aid, and showed that this worker had had a longer practice period than the others, in other words, he was "experienced". The skew therefore must be caused by his restriction of output, consequently it is assumed that worker II is poorly motivated.

How to Get Improved Performances

COMPARISON of the distributions for each element is next in order. Element "A" indicates that infrequent hindrances occur. Upon investigation it was found that the wrapping papers occasionally stuck together. This environmental variation caused a variation from the usual method, which slowed up the work and increased the time-values. Analysis of element "B" provides no significant information.

Element "C", however, shows the greatest relative width for the three workers, since the maximum value is generally greater (144-188%) than the minimums. For the other elements this width is about 130%. Actual observation showed that

method and environment variations were insignificant, consequently the great width is caused by the worker.

Thus it was concluded that habituation is relatively weak on this particular element. Greater work simplification and training, was considered for "C" specifically, since the greater time variations indicated that it is more difficult than the other elements.

Analysis showed that Element "D" has the greatest relative difference among the minimum work-times. The lowest value is .07 for II while the highest is .17 for I or 142% greater. The environment and method could not cause these differences since they are stable for all three workers. Also, the skews and widths are quite similar, which indicate that motivation and habituation are not greatly different for the three workers. The slight negative skew for worker II cannot have increased this minimum time very much.

Therefore these times differences were attributed to the differences which might exist in native fitness or aptitudes for the required work. These could exist in length or strength of arms or fingers, or in their dexterity and coordination. The work in this particular element, rather than in the others, distinguishes between the native differences in the workers. It therefore contains the logical basis for an effective selection test. However, it was considered necessary to break down the time study on this element, to study "wrapping" separately from "tying-and-knotting", before searching further for the specific criteria for selection. Furthermore, had worker III had blistered hands and used greater care in handling the rope this would create a method difference which would precede any conclusion on aptitude differences.

These possibilities emphasize again that conclusions are related to a detailed knowledge of the actual work situation. The characteristics merely provide useful clues, each of which must be carefully investigated before any particular influence is considered significant.

Applications to Personnel Administration

CHART I shows one distribution resulting from excellent, and another from extremely poor performance. Somewhere between these two extremes lies the average performance obtained or desired by management. The definition of the average worker should be based either upon a frank "as is" performance, or actual average, or else upon a performance which management judges as generally possible and desirable to obtain from its work force. In the latter case the definition will be based upon the concepts of the Work-Time Distribution technique, whereby the average worker in a concern is defined with reference to the most efficient worker.

This reference is desirable if proper norms are to be set by management. Thus the average worker is one whose time studied performance, on a standard method, results in a work-time distribution with an arithmetic average 25% higher than its

minimum time, the latter to be 35% higher than the minimum shown by the most efficient worker on similar work method, and environment, and having similar or better skew and width in his distribution. (These percentages vary inversely with the personnel control attained or desired by management.)

The kind and extent of motivation present in work situations can be measured. The skew may be compared with a "standard skew", the latter developed or estimated in accordance with desirable and possible work situations. A "standard skew" for example, may be expressed as the "modal time is 10% higher than the minimum" time. Upon such a basis the main stimulant to morale and the "will to work-well", such as a wage system, a foreman, or some other incentive, may be critically examined, compared, and improved.

Training Evaluated

THE extent of habituation can also be measured. The relative distribution width, or deviation, of actual cases may be compared with a "standard width", the latter developed or estimated in accordance with desirable and possible work situations. "A standard width" may take some such expression as "the maximum time is 90% higher than the minimum value of the distribution." Upon such a basis training procedures may be critically examined, compared, and improved. Furthermore, the differences in native fitness among workers for the work, can be measured.

The relative differences among minimum time values may be compared with a "standard minimum difference", the latter developed or estimated in accordance with desirable and possible work situations. For example, the relative differences among the minimum times of several distributions may be such that the largest is 200% higher than the lowest minimum time. The "standard difference" may however, be established at 120%, or less. When the actual difference is much greater than the standard, personnel selection may be a problem, if the operation is important. The choice of a suitable selection test may be indicated by the operation element containing the largest relative differences among minimum times.

Estimating Costs

THE need for better motivation, (or for training, or selection), and the costs required for filling this need, may be estimated from the Work-Time Distribution. This is done by comparing the actual with the ideal or possible skew, (or the width, or the difference among minimum times, respectively). To illustrate this application refer to Chart 5, where for worker II the negative skew indicated a probable average loss in time of 5%. The yearly loss to the management and to the worker may then be estimated, provided the condition is not temporary. The estimated expense for remedying this condition can be compared with the total possible savings.

It follows from acquaintance with this technique that an important problem in psychology, learning, must be viewed in a different light than heretofore. Instead of explaining learning in a general way and from a purely psychological approach, the entire learning situation can be, and must be, investigated in detail with all the available techniques in combination with the Work-Time Distribution.

On this basis the author proposes that much learning in physical activity is chiefly a matter of gradual method changes. This hypothesis, if found true, would be of tremendous significance to the psychologist. Of course, the specific influence of aptitude, fatigue, habit, etc. must be related to this problem. Already there is some recognition of the probable importance of methods in the problem of learning (13).

Advantages Summarized

THE advantages of this technique may be summarized as follows. It is suitable for analysis of the causes of efficiency in manual work situations, since it makes otherwise intangible factors more objective, measurable, and comparable. It indicates the extent to which improvement and standardization of method, environment, and personnel may be necessary. It is a fundamental management research technique, since it supplements and complements other techniques in motion and time study, in personnel and in industrial psychology. Furthermore, it is relatively simple, considering the complexity and variability of work situations. Successful use of this technique depends upon logic and care in application, rather than in the statistical methods.

It is relatively inexpensive, because with practice in its use one can infer the likely distribution characteristics from as few as ten work-times. It is not necessary to account for all the influences upon efficiency, as long as it is possible to discover those that significantly affect a particular work-situation. It is unnecessary to know the exact nature of any one thing before such a thing can be used in fairly effective ways.

Pictures Work-Factors

FINALLY, it is a diagnostic technique that pictures the work-factors, and adds to the understanding of the entire work-situation. It imposes a careful study of the entire work situation and a logical examination of significant influences. By comparing actual with standard characteristics, it demonstrates the need for specific changes in management policies and practices.

The chief advantage however, is that this technique creates a way of thinking more effectively about work-situations. Time study now becomes a more useful and basic tool of personnel management, since most of the old problems receive a new and more scientific approach. In that sense, the Work-Time Distribution technique contributes to the advancement of the science of personnel management, particularly in dealing with manual repetitive work.

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The Publication of any Paper or Pamphlet is Expensive. Many Companies do Without Them Because of Strict Budgets which Allow No Extra Expense. But the Companies which Have Them Consider that Increased Employee Efficiency Results.

Company *and* Employee Publications

BY WILLA GIBBS

The Parafine Companies, Inc.,
San Francisco, Cal.

LIKE to see your name in print? You bet you do! A great short-story once was written around the single incident of an old man buying his son a printing machine—and hoping for days . . . weeks . . . years . . . that just *once* the boy would think of setting up his dad's name in type. The boy never did.

There's a fascination to a name in typeset. It looks different than it ever did by hand or by typewriter. It carries an aura of romance and glory and importance. Napoleon's name has seen type many times, and Capone's, but the middle-guy, unless he lives in a rural community strong for "personals," may never receive that satisfaction.

Names Make News

THE term "power of the press" did not originate from the editorial columns, where men even as you and I give vent to highly personal opinions. "Power of the press" resides in the columns where names are seen. "Getting your name in the paper" can be a passport to anything, the inner circle of the Four Hundred or of San Quentin.

Least inspiring of all types of publications are house organs and trade magazines. Yet even these have a "pull" that draws many readers. Based on the theory exercised by the small-town paper, that people would prefer to read what they already know, these trade magazines and house organs have a string of readers as loyal as have the *Cosmopolitan* and *Saturday Evening Post*.

Budget? So What?

MANY a hard-headed corporation executive more interested in his budget than his wife is willing to appropriate an astonishingly high sum to subsidize a house organ. Nor is this an absurdity. One of these little papers can create a whole atmosphere, can condemn or praise, in a record that is strong, definite and lasting. Nothing is a more satisfactory lever for pushing a sales or safety campaign.

Particularly the creation of a proper atmosphere can be carried out, wholly or in part, by use of the house organ. If some style or good writing is apparent, the paper may pack the appeal of a high school newspaper or a college yearbook.

In The Paraffine Cos. Inc., two house organs are maintained, with two different jobs to do and two different success stories to tell.

One of these, the Pabco Paint NEWS FLASHES, is a one-page mimeograph sheet slanted for paint salesmen and compiled, written and edited by a paint executive with a sense of humor and a definite writing style.

An Editor Who Spanks

DEPARTMENTALIZED, as many newspapers are, this sheet has an "orchids" column, a "spanking" column, a "thanks" column and a "preview" column.

The orchids column is a congratulatory one. It pats salesmen's backs, reports stunts that were salesmakers, records good deals or unusual ingenious methods. Sometimes it lauds head office men. Throughout the entire column, a spirit of friendly rivalry is promoted.

It describes boners, too, in a half-serious, half-humorous way that makes good reading and acts as insurance against further boners.

EXAMPLE:

"I worked with a man in the Central District last week who didn't know we had a new wall coater. (I won't tell, Mr. Bishop, Central District Manager. Yet this item was introduced in NEWS FLASH #23 of April 5!

I talked to a Southern District man this week who—and I won't tell you, Mr. Greig, Southern District Manager) wasn't aware we had an improved deodorized flat wall paint. Yet it appeared in NEWS FLASH #34 of May 1!"

Probably the most interesting and most valuable section of the NEWS FLASHES is the preview department. The editor of NEWS FLASHES happens to be a paint engineer with a consuming curiosity. He spends his free time investigating, probing, testing. He maintains a small paint shop in the head office, frequently is found there in paint-spattered overalls, testing new combines, working to eliminate paint odors, or trying new gadgets.

EXAMPLE:

"Interesting sheet attached on a new spray machine on the market. I tried it out myself. The claims made are true. It really delivers that much

air. I tried both enamel and flat with it, and obtained excellent results. . . . So you can recommend the machine as a good deal for the money."

EXAMPLE 2:

"When I went to school, they said: 'A quadruped has four hooves. A horse has four hooves. Therefore, a horse is a quadruped.' Pragmatism, they called it. Not bad stuff . . . I had a sun deck covered with smooth roofing (Mica). Stuff tracked inside making wife very angry. Phila 1A to the rescue! Traffic Lacquer works on asphalt highways. Roofing is asphalt. Sic. Oughta work. You should see my swell roof deck!"

The NEWS FLASHES is a means for making this man's investigating work of real value to the company's sales force. Many men on the road are too busy to read accounts of new developments, or make tests for themselves. This readable digest provides them with valuable information that can be passed on to dealers, making them authorities and advisors rather than mere salesmen.

Or, as the NEWS FLASH publisher himself puts it in a stinging editorial:

"Now look here, fellows! I volunteered this deal. It's meant as a real source of information for you. If you don't read it, you can't keep up with the alert ones! You *have* to read it to know what's doing. You have to keep it to have your information available. You have to use it to do your job. Now do you or don't you?"

Definite stylization of the NEWS FLASH, and its interested approach to the salesmen's problems, have increased interest and whipped up energies, with accounts of what has been done and what can be done.

Journalists Cringe

THE second Pabco house organ is the Pabco BUILDER, a considerably more ambitious project than the NEWS FLASHES, since it is made up and printed in a newspaper shop.

Written by employees for employees, the BUILDER is a highly unprofessional job, editorially speaking. In six short pages it makes every journalistic boner known to the trade. It bristles with truisms, discarded expressions, strange linguistic effects.

Since the employees know nothing of journalism (and don't care) this presents no difficulty to the writers and editors of the BUILDER.

What the BUILDER does accomplish, in many cases more successfully than a real-life newspaper, is to tell the story, tell it right, tell it as the person involved would tell it, and tell it to please the readers.

Its language is factory language. Its occasional flights into imagery are more amusing than poetic, but this in no way hurts the BUILDER's reputation. Its true value lies in the fact that it is a release for the energies of the worker, and provides a focal point of interest. The day on which the BUILDER comes out is a day devoted to secret glimpses during working hours, and open enjoyment at luncheon or after the 5 o'clock whistle.

Occasionally management uses a small space in the little paper to warn employees to safety, describe new procedures, or ask support in some campaign. Response is usually gratifying.

Pictures Are Exciting

THE BUILDER's pages are rife with pictures of the factory people. These pictures are expensive. They are made especially for the little paper, and necessitate sending of cameramen to inter-company sports tournaments, picnics and dances. The expense is gladly borne on the very correct theory that one's picture in the paper is even more exciting than one's name.

Publication of paper or pamphlet is a tall expense. Many companies do without them because of strict budgets which allow no extra expense.

But there is room on the Pabco budget for the Pabco BUILDER and the Pabco PAINT NEWS FLASHES. Because, company officials have learned, these little house organs do a more effective job for nearly every department.

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The Labor Movement has Never Favored Peace
at Any Price. International Peace is in the
Interest of Workers only So Long as it Involves
No Threat to the Preservation of the Social,
Economic and Political Gains which They
Have Made.

Defense Strikes, Hours, Labor Supply, Wages

BY CHARLES S. SLOCOMBE
Personnel Research Federation,
New York, N. Y.

FOUR major labor problems face us as the defense program expands: avoidance of strikes, extension of hours of work, labor supply and wage rates.

A brief resume of how these problems have been dealt with in other countries, now at war, may help to indicate some of the ways that may develop here.

Compulsory Arbitration

THERE are bills before Congress now, providing for compulsory arbitration, and the banning of strikes. American labor unions, and experts in labor matters such as Dr. Lieserson, of the National Labor Board, do not think that legislation of this sort is likely to provide a cure for the situation that may develop.

English labor unions refused to agree to compulsory arbitration until Hitler smashed through France. Then, waking up to the gravity of the situation in which they found themselves, they changed their minds, and agreed to compulsory arbitration of disputes, and the prohibition of strikes and lockouts.

It must be noted, in passing, that legislation providing for compulsory arbitration and the prohibition of strikes does not prevent strikes. It just makes them illegal. There have been quite a number of wild cat strikes in England since the legislation was passed, and Australian experience with such legislation over the years has shown that serious strikes may take place.

Public opinion is a much more potent deterrent.

Strikes not Prevented

IT is also to be noted, in passing, that clauses written into labor union agreements between employers and unions, banning strikes for the period of the agreement, do not prevent strikes. Some American unions have no objection whatever to agreeing to the insertion of such a clause in an agreement, even though it seems, on the face of it to ham-string them.

When they feel justified in striking, in the face of such an agreement, they say, "Well, the employer broke the agreement first, so it no longer holds, and we are free to strike to make him stick to the agreement." This we suppose might be termed 'casuistry'.

Returning to the English compulsory arbitration, it was put into effect through a government order, under broad emergency powers granted by previous legislation, and not by a specific act. It provides for a National Arbitration Tribunal of five men. Three of these are appointed by the government as permanent members. The other two are selected, to represent interested employers and labor in each case coming before the Tribunal.

The procedure is as follows. Either party to a dispute can, if it wants to, notify the labor department. If there is collective bargaining machinery in the industry the department refers the case to them. If there is not, or the dispute cannot be settled it is handed over to the Arbitration Tribunal within 21 days.

Decisions reached are then binding upon both parties concerned.

Strikes Just Made Illegal

STRIKES and lockouts are banned, unless the Labor Department has not referred the case to the Arbitration Tribunal within the specified 21 days.

England has set up a series of trade boards, somewhat similar to those developing under the Wages and Hours Act in America. Under their system, wages and hours are agreed upon by a substantial number (not necessarily a majority) of employers and organized employees in an industry, in a district. When there is such an agreement reached, it is registered with the government, and becomes binding upon all employers and employees in that industry, in that district, whether they were represented in the negotiations or not.

These are called "recognized terms and conditions of employment." The compulsory arbitration order makes the observance of these compulsory.

A system is also developed whereby customary trade practices, regarding working conditions, may be filed with the local labor office, and also any change made in these because of the war situation. This is to facilitate a return to normal practices, when the emergency is over. Most agreements for departures from normal practices provide for an automatic return to normal, after the war.

This is the system set up in England for the avoidance of strikes. It has not completely abolished them, but has done so in the major industries.

It is being subjected to a big test now, because the unions in the metal trades, representing a million workers, have demanded a \$2.50 a week increase in pay, which the employers have refused. The Arbitration Tribunal has the case before it.

Efficiency Maximum, 56 Hours

AS THE supply of specialized types of trained and experienced workers becomes more and more absorbed in America, the pressure for longer and longer hours will increase. While the Wages and Hours Act provides for a 40 hour week, it does not prohibit longer hours, if a company can afford to pay the overtime rates involved. Thus there is, in effect, no legal limitation of hours of work in America, for adult male workers.

But whether there is any legal limitation or not, the question arises as to what is the maximum number of hours of work that will produce maximum efficiency. English experience in manufacturing, and researches conducted there, during and since the last war, seem to show an efficiency maximum of 56 hours per week. Beyond this time, output per hour drops considerably, and accidents, sickness, absenteeism increase, so that added labor expense for the longer hours is in effect wasted.

Conditions in Japan

IN JAPAN it was actually found, or stated, that there was a considerable increase in the number of fires in factories, when hours were unduly lengthened, due to excessive fatigue of workers.

The Japanese government consequently issued an order limiting hours of work for adult male workers to 12 per day, with not less than 1 hour off. There is no limitation on the number of days worked per week.

These limitations, in Japan, apply to adult male workers only. Latest reports seen, indicate that female workers in Japanese cotton mills, most of them between 7 and 14 years of age, work 13 hours a day, 7 days a week.

German Experience

GERMANY experimented with more or less unrestricted hours of work as the war started. But after a short time the deleterious effects on worker efficiency were such that they had to return to prewar standards.

The prewar hours were 48 per week, with time and a quarter for overtime. These were in effect before Hitler came to power, and he continued them. The only change he made was to allow averaging this over two weeks, so that the total time for two weeks was limited to 96 hours, with a maximum limit of 10 hours in any one day, with time and a quarter for hours in excess of 8.

It will be remembered that there was a strong pressure in America, at the time of the passage of the Wages and Hours Act, to allow averaging of hours, over a number of weeks.

When the war started in Germany in September, 1939, limitations on hours of work were virtually abandoned there. But that lasted only ten weeks, and the loss in efficiency, and increase in worker dissatisfaction was such that a return to the 8 hour day was made.

The Hitler government stated its policy as follows; "Even if output has to be increased, exaggerated demands must not be made on the workers. Accordingly, the relaxation of labor protection ordered at the beginning of the war could apply only during the initial period of adjustment to new tasks. That period having expired, the government is again fully concerned with the protection of labor. Excessive hours of work must be prevented."

How England Is Regulating Hours

IN SPITE of the previous war researches, and continued studies since, when the war broke out, English manufacturers started working their men 70 and 80 hours a week. The probability is that they paid a lot of overtime for nothing, because the men produced no more than they would have in 56 hours.

Hours are not regulated in England, but are determined by collective bargaining. The government consequently used its influence to stop excessive hours by issuing a pamphlet on the subject, for the guidance of employers. Following are extracts from this booklet:

Government Booklet

OWING to the situation in this country following the collapse of France it was necessary to call upon all those engaged on war production to make an intensive effort by working longer hours to speed up production to the utmost extent. It is still of vital importance to maintain war production at the maximum. It is of equal importance, if this end is to be achieved, to relieve the strain on work-people caused by long and continuous hours of work, and for this purpose an adjustment in the present long hours of work is essential. This is a matter which must be dealt with by firms in accordance with their particular circumstances, and not by a general order. To achieve this the hours of work must be adjusted to prevent tiredness. The continuation of seven day working, with an average working week of between 70 and 80 hours, will quickly cause a rapid decrease in individual productivity owing to the abnormal strain. If prolonged, the output achieved in seven days will become less than what could have been achieved with the same group of workers in a shorter period. It is necessary, therefore, that the

average hours of work should be reduced to a lower level, the ideal being the figure which will give, under existing conditions, the maximum output.

It is not easy to determine this figure, which varies according to the circumstances of different industries, but experience shows that it is materially below the general hours at present being worked on war production. To maintain output and at the same time to reduce the working week it is clearly necessary to take steps to increase the size of the working force so that the man hours per week will not be diminished but rather increased. . . .

Suggests Gradual Reduction

IT MAY not be practicable to effect a reduction to the optimum hours immediately, in which case an interim arrangement must be put into operation. An illustration of a practical arrangement that would relieve the strain on workpeople during an interim period is given below:—

First Week.—The day shift operates from 7.30 a.m. until 7 p.m. on four of the five days, Monday to Friday, and from 7.30 a.m. to 5 p.m. on Saturday and on the other day chosen for a stoppage at 5 p.m. during the week.

Meal breaks are $1\frac{1}{2}$ hours: 1 hour at mid-day and $\frac{1}{2}$ hour for tea; for long days, making the actual hours worked $10\frac{1}{2}$, and one hour on Saturday and the other short day, making the hours worked $8\frac{1}{2}$ —average working week, 58 hours.

Second Week.—The day shift operates as above from 7.30 a.m. until 7 p.m. on four of the five days Monday to Friday, and from 7.30 a.m. to 5 p.m. on the short day in the week. On Saturday work ceases at 12 noon (no meal hour). Sunday work is continued from 8 a.m. to 5 p.m. with a break of one hour—average working week, 62 hours.

This cycle of hours is repeated, giving an average working week for the day shift of 60 hours.

The night shift operates from 7.30 p.m. to 7 a.m. on five nights a week, Monday to Friday, with breaks amounting to one hour for meals, the actual hours worked being $10\frac{1}{2}$ per night. A sixth night can be added fortnightly if production demands it. . . .

As soon as the necessary labour force has been acquired and trained, steps must be taken to institute a permanent scheme to achieve the two primary purposes in view, which are:

(1) a reduction in the working week to the optimum hours, which experience in many industries would show to be in the region of 55 or 56 hours;

(2) a corresponding increase in the productivity per man hour.

Recommends Rest Pauses

IT is of vital importance that there should be adequate breaks for all workers during which the management should endeavour to provide easy facilities for the workers to purchase refreshments likely to restore their physical and mental vigour. It is suggested that a break interval of 10 minutes' duration might be introduced near the middle of the normal working period. For some cases other arrangements (for example a break in each hour) may be preferable.

The Labor Supply Problem

THE National Defense Commission in America has developed plans for 20 local offices, throughout the country, to aid in solving labor supply problems. To date, this organization is not officially hooked up to the state employment services, though the War Department thinks that they should be used by employers for hiring, as a means of controlling and determining needed workers, in relation to the drafting of men.

Germany set up local labor supply offices when the war began. So did France, before her downfall. Now England has done the same.

English regulations, issued under Emergency Powers, go far in this matter. Surprisingly so, for a democracy. They provide that any man or woman may be required to do any work in any place that the government orders them to. If they are on relief, or on the unemployment compensation rolls, their pay will be cut off if they refuse to do what they are told to do.

English employers in certain essential industries are also prohibited from hiring employees from other essential industries. They are prohibited from hiring employees except through the government labor exchanges, corresponding to our state employment services. Advertizing for help is also banned.

America is not in the war, and hopes to keep out of it, but as the defense program expands, and the labor supply pinch tightens there will be increasing pressure for some form of labor supply regulation.

Working through Local Agencies

THE English have set up a National Labor Supply Board, as has Canada. This board intends to work in close harmony with labor unions and employers.

In so far as most of the labor supply problems are local ones, reliance is placed upon the local labor exchanges, corresponding to our state employment agencies, but with general supervision by Area Supply Boards, on which are represented men with a practical working knowledge of industrial conditions. Local panels of advisory people also assist in working out the problems of particular industries.

Unemployed workers may be required to work at any job they are allotted to,

perspective of whether the pay is lower than that of the job they have just left, or whether it is in the same occupation.

Of course, there is as yet no detailed knowledge as to how these arrangements are working out. They are powers of the government, but may not yet be enforced.

"No Poaching" Regulations

SHORTAGE of skilled workers has led to the issuance of regulations prohibiting the transfer of workers (that is, their hiring into other industries) from engineering, building, civil engineering, agriculture and coal mining, except with the permission of the local government agency.

It is known that this regulation is not working out too well, because workers are still able to shop around in the same industry for higher wages.

The English government, as we have, is encouraging training of workers. They are not relying solely upon educational institutions and technical schools, but are setting up government training centers. Men completing training under this scheme are put into the Reserved Occupation classifications, and are either hired into industry in these classifications, or go into the army to work at these trades there.

It is hoped to train 1,000,000 men a year in this way by short intensive courses. Trainees who have had short courses are placed with employers who are prepared to continue their training.

The unemployed who undertake training are given an allowance by the government.

Technical schools and colleges are expected to supplement this program, and provide an additional 50,000 trained men and women a year.

War Time Wages

Less, but not least, is the knotty problem of war time wages. It is not difficult to legislate minimum wages, but to put a ceiling on wages—a maximum limitation—has been found very difficult, even in totalitarian countries.

Indirect ways of dealing with this problem seem to be most generally tried; that is regulating the competition among employers for workers, particularly where it involves outbidding each other; price fixing to keep the cost of living stable, as is done in Germany; and training as many workers as possible to bring the supply more nearly in line with the demand.

One of the most difficult, and upsetting, aspects of the wage problem is the change in the general wage structure. This is most likely to cause unrest and

Differentials Reduction Causes Strife

WITH the expansion of mass production industries semi-skilled and unskilled workers on piece rates, are likely to earn more money than skilled workers on day rates. Hence the differential between them, in weekly earnings, is reduced or abolished.

Even among skilled workers the wage advances in different trades may vary, as for instance in the last war, when in England in the shipbuilding industry, painters got a 2% raise while fitters got a 43% increase.

These changes in differentials, if they take place here, are likely to widen the split between the skilled AFL worker unions and the CIO unions. They are also likely to increase internal dissensions and jurisdictional disputes among the AFL unions.

So far, in the present war countries, the most potent influence on wage increases has been the increase in the cost of living. Most of these increases have been flat ones, rather than percentage increases. This has tended to further reduce the differential between the pay of skilled and unskilled workers.

Cost of Living Base

SOMETIMES these increases have been in the nature of cost of living bonuses. Whether this has been so or not, they have been related to cost of living increases. Where there are government or trade boards, involved in determining wages, the great tendency is to tie wages to the cost of living. In some cases there has been an almost automatic rise in wages as the cost of living has gone up.

Cases are reported in which the increase in wages caused by increase in cost of living has varied according to the pay of different classifications, those with the least pay being given the biggest raise. This happened in Italy.

In another case workers in the lower pay brackets were given raises amounting to 75% of the increase in cost of living, while higher paid workers received 25% of the increase in cost of living. These pay schemes are worked out on the theory that, in an emergency, the worker must make some sacrifice, and not receive pay increases fully proportionate to cost of living increase.

"In Times like These Each and Everyone of Us on the Canadian National Railways can Contribute Most to the National Effort by Attending to His Work and Carrying On as Efficiently as Possible." Mr. Hungertford, President

Union-Management Cooperation

Report on Plan of

Canadian National Railways,
Montreal, Canada

THE Canadian National Railways has had in operation a union-management co-operative plan for fifteen years. The plan is based upon definite agreements between the company, and the unions concerned.

These agreements are distinct from the collective bargaining agreements, determine the areas of cooperation, and specifically exclude all matters that may involve contention.

Each year an annual meeting is held to review the results of the year's work. This is attended by the president of the company, and ranking officials in the several departments together with ranking officers in the unions concerned.

Below are given extracts from the report of the last meeting to show how the system works, and the ground it covers.

Company President's Opening

MY Gentlemen and Gentlemen, it gives me a great deal of pleasure to extend a very hearty welcome to this meeting. The System Co-Operative Committee meetings have become more or less of an institution, to which we all look forward with a great deal of pleasure. I for one am always pleased to have an opportunity of attending a System gathering. The underlying principle on which this Movement was founded is co-operation, and goodwill,—mutual understanding has followed.

Since the inauguration of this movement on the Canadian National Railways

we made a study of co-operative arrangements in effect in other parts of the world and a number were found to be very successful. It will be appreciated that in an organization of the magnitude of the Canadian National Railways, which is national in scope, that there are various problems that can only be considered as our very own and through this Co-Operative Movement we have been able to establish machinery which implements the consideration and solution of many of these problems. This little Movement, in itself comparatively small, is a shining example by which the people of this war torn world could be greatly benefited.

Summary of Results Reviewed

THESE statements show the number of suggestions brought up between 1925 and 1939, classified into groups to indicate what the suggestion was in connection with; also the number of items brought up by each committee and the disposition made thereof. The figures showed that during the year 1939, seventy-four committees had held a total of 751 meetings; 1243 new suggestions were produced and 204 pending subjects were reviewed making a total of 1447 items dealt with of which 1046 were accepted, 126 dropped and 275 reported pending at end of year.

Since the inception of the Movement 25,012 subjects have been produced of which 19,979 were advanced by employees and 5,033 by management representatives. Classification of these suggestions shows that 315 items were in regard to securing traffic for the railway, 4146 were in connection with First Aid and Accident Prevention, 1084 dealt with Fire Prevention and 19,467 were in connection with other Co-Operative matters in general (See Table I, page 246).

Manufacturing in Main Shops

THE report indicates that during the year 1939 orders were placed by the Stores Department for the manufacture of articles at main shops to the extent of \$679,895.78; in addition expenditures were made to the extent of \$170,072.20 in connection with the construction of new equipment making a total of \$849,967.98 for labour only. The 1939 figures exceeded the 1938 expenditures by \$151,921.75 and the average of those for the past eight years by \$188,070.69. The foregoing figures cannot be taken as indicating the total work done in the shops as the figures only represent 6.3% of the total payroll but the figures do give some relative indication that a worth while effort is put forth to provide work for the shops.

The representatives of the employees from both Canadian and U. S. Lines expressed their appreciation for the amount of work provided from this source and stated that they considered that they were in a position to do considerable more work efficiently and economically.

It was stated for the Management that the question of doing considerably more

work in our shops is one of policy and a factor that must be borne in mind is that the railway must reciprocate and place orders for materials with business firms in order to secure revenue producing traffic from them. This question has been dealt with fully in previous minutes as reported in detail under Item No. 7 of meeting of November 7, 1945.

Employment Stabilization Analysis

STATEMENTS entitled *Analysis of Employment, Craftsmen and Helpers* for the years 1907 to 1909 inclusive, were reviewed.

The Chairman explained that the figure representing normal schedule hours — 365 days—deduct 111 for Saturdays, Sundays and seven holiday days—leaves a balance of 254 days— 254×8 hours per day = 2032 hours.

UNION-MANAGEMENT COOPERATION

Details for each main shop for each year are shown. They show; normal schedule hours; hours worked per average man drawing pay, factor of stabilized employment and total disturbed time. Disturbed time is divided into that due to the company, through closed shop and labor turnover, and that due to the men, through absenteeism, lateness and labor turnover. They are summarized below.

YEAR	LOSSES DUE TO LABOR TURNOVER	DUE TO DISTURBED TIME		TOTAL
		Company	Men	
1935	79.4	14.5	5.0	98.9
1936 12 average 5 yrs.	73.6	20.4	5.0	99.0
1937-38 10	71.8	22.5	4.7	99.0

Summary of pre presentation items brought up at cooperative committee meetings in 1937 compared with 1935, 1936, 1937 and 1938

	1935	1936	1937	1938	1939
Atlantic Region	20	13	11	8	10
Central Region	16	20	18	17	38
Western Region	33	24	16	10	16
C. T. W. Railway	0	8	6	2	14
Central Vermont Railway	—	—	4	—	—
Total	75	74	55	47	88
<i>Clarification</i>					
Rectification of hazardous conditions and practices	51	47	23	23	3
Repairs to water lines, hydrants, chimneys, and added protection	16	8	19	14	27
Fire extinguishing apparatus	8	16	6	1	2
Violation of Rules	—	—	—	—	3
Total	75	71	58	47	35

As in previous years the report was presented as a matter of information as indicating the status of stabilization of employment.

Explanatory Notes

THE average number of men divided into the Total Hours Worked, equals Hours Worked per Average Man Drawing Pay.

The Total Disturbed Time is the difference between the Normal Schedule Hours and the Hours Worked per Average Man Drawing Pay.

The Total Labor Turnover—Due to Company and Men—is what remains of the total Disturbed Time, after deducting Absenteeism and Lateness, this amount then being prorated in accordance with the number of men discharged, transferred to other payrolls, and closing of shops, which is assignable to the Company; and those deceased, pensioned and leaving of own accord, which is assignable to the Men.

Apprentice Training

Railway apprentice training was reviewed. Some of the important features are as follows:

...	271	122.4
...
...	31	...
...
...
...

The report was discussed in general and the employee representatives congratulated the railway on the very efficient work that was being done in educating and turning out skilled mechanics with a thorough grounding of the fundamentals of their trade. Opinion was expressed that the increase in training of apprentices in the running trades was a step in the right direction and that this practice should be encouraged in order that the apprentices may establish seniority with the expectation of their being retained in the service.

It was also stated that in the future the adoption of more effective and efficient machinery would probably lead to a reduction in the demand for labour and, therefore, serious study should be given as to what may happen after the war with a view to assisting industry in general to formulate plans that will enable production for peace, as well as for war, and the avoidance of slack times with consequent benefit to the country in general.

Typical Employee Suggestion

At the Western Region Committee meeting held on March 18, 1940 discussion was held in regard to a wheel raising device for raising solid truck sides developed by Carman W. Hutchison of Prince Albert. It was recommended by that Committee that the designer be commended for his efforts towards improving the railways' repair facilities and that plans of the device be distributed in order that it may be considered for system use. It was reported that the device referred to is light in weight, easy to handle and that with its aid one man can change a pair of wheels in 20 minutes.

The Management representatives stated that a number of wheel raising devices were being used at the present time. Some are better than others and while the device developed at Prince Albert had merit it was not considered that the device was outstandingly superior to other devices although no doubt suiting conditions admirably at Prince Albert. Other employees had devices in use some of which the employees had themselves developed.

The fact was stressed that permission for the use of devices developed locally must be received from the proper officers. Western representatives of employees indicated that the merits of the Prince Albert device had not been appreciated by the Management. The device will be further studied. It was pointed out that arrangements are in effect whereby the Regional head of a department can suitably compliment employees for their efforts in developing new devices and it was arranged for the necessary action to be taken in this instance. Adopted.

Fire Prevention

THE following is a summary of items in respect to Fire Prevention reviewed at Co-Operative Committee meetings during the year 1939 and compared with the four previous years.

Attention was drawn to the fact that the fire losses for 1939 amounted to \$217,911 and that this figure compared with an annual average of \$348,419 for the preceding five years and an annual average of \$402,000 from 1923 to 1935.

Opinion was expressed that the interest displayed by the members of Co-Operative Committees in regard to fire prevention activities assisted to a great extent in keeping fire losses at a minimum. Attention was drawn to the fact that fire prevention consciousness by all concerned limits the possibility of a shop being burned down which in turn would put men out of work.

Accident Prevention

MR. A. O. Beck, System Supervisor of First Aid and Accident Prevention, on request from the Chairman reviewed the accident statistics for the year 1939 and made comparison with the years 1938 and 1937. The figures summarized below cover injuries to employees of the M.P. & C.E. Department at *all outside points as well as at main shops.*

The average frequency rate for the 14 shops shows that a consistent improvement has taken place, viz., in 1937 it was 31.64 per million man hours worked, for 1938 30.13 and for 1939 28.48. These frequency rates indicate that:

In 1937 there was 1 Lost Time Accident for every 31,603 Man Hours Worked.

In 1938	"	"	1	"	"	"	"	"	"	"	33,191	"	"	"
---------	---	---	---	---	---	---	---	---	---	---	--------	---	---	---

In 1939	"	"	1	"	"	"	"	"	"	"	35,111	"	"	"
---------	---	---	---	---	---	---	---	---	---	---	--------	---	---	---

The man hours worked in 1937 (20,068,121) were 15% above those worked in 1938 (17,126,494) and the man hours worked in 1939 (18,327,909) were 7% higher than those worked in 1938 but 9% below the 1937 figure.

Appreciation was expressed by Mr. Beck for the continued co-operation of all Supervisory Officers and the members of the respective Co-Operative Committees.

To the latter special commendation is made for the various practical devices and suggestions submitted.

It was brought out that on the Western Region the practice of appointing a sub-committee of the Co-Operative Committees, particularly at the larger points, to investigate accidents and report details at Committee meetings had resulted in a substantial reduction in the number of injuries sustained and it was considered that if the practice were followed at other points and more personal supervision given by foremen and other supervisory officers considerable benefit would be derived.

Securing Traffic for the Railway

THE Chairman stated that in accordance with the practice established some time ago, means of increasing revenue for the Canadian National Railways and improving service rendered to the public were discussed at most Co-Operative Committee meetings. He mentioned that a resumé of the discussions recorded in regard to this subject revealed that it had been reviewed 364 times during the past year.

To assist in the solicitation of traffic details in regard to conventions to be held by societies, service clubs and other associations, proposed picnics and other sporting events, were submitted to representatives of the Traffic Department and the report indicates that considerable passenger, freight and other business was secured.

Suggestions in regard to distribution of advertising literature, rearrangement of train schedules, providing additional train service, furnishing improved equipment, developing means to increase the volume of L.C.L. shipments, introducing some method of directing attention of passengers to points of interest along the line of travel were brought up for discussions and the decisions reached were referred to the proper officers for attention.

Professor Slichter was asked by the Chairman to comment on how he found the Co-Operative Movement after an absence of a year or so. Mr. Hills stated that he was sure everyone would be interested in hearing from Professor Slichter.

Some Comments by Sumner Slichter

MR. CHAIRMAN and Gentlemen: I much appreciate the opportunity and the invitation to come here and I am glad that conditions were such that I was able to come.

Mr. Hungerford this morning referred to the Co-Operative Movement as an institution on the railroad. I do not see why it should not be an institution wherever labour organizations are recognized. The schedule arrangements which you have in effect between the organizations represented at this gathering and the railroad give the terms of the employment contract, but there are many matters which you cannot handle by purely adjusting those in the schedule or by making it a matter of contract.

Consequently wherever labour is organized, it needs more than the schedule to deal with matters that are of interest to labour and management. This is what this

Co-Operative Movement does. It provides an opportunity for talking over many things such as you talked about today, which are matters of mutual interest but which are outside the schedule.

Survey of Plans

WE HAVE been doing some work at Harvard that might interest you and I would like to mention it to you. I have had a man in the field for much of the year studying recent cases of union-management co-operation. We are trying to compile for each one of these cases a sort of a case record, that is, how it started, how it has been working, etc. Our funds, of course, are limited so we have not gone west of the Mississippi (although we have some record of instances of union-management co-operation on the Coast) and we have not gone very far south.

We have been following about 25 cases from Wisconsin on the west and north of the Ohio. They are just about divided 50-50 as to origin between management and employees. Most of the cases, about 20, are in places where costs of material and labour are high or where competitive difficulties existed. There are a few low cost companies among them. I think that only five of the 25 co-operative plans have ceased to operate. Our field work indicates that there are many different reasons why co-operative plans may cease.

There was a big store in Philadelphia which had one. The union developed internal troubles and the plan ceased to operate. It requires good judgment and good management to make a success of union-management co-operation. Consequently you are entitled to feel a certain satisfaction and pride in having made a success of your Co-Operative Movement for 15 years.

Some Succeed, Some Fail

IN OUR studies we have found some instances of qualified technicians being associated with the union side of co-operative movements. For example, I have in mind a large hosiery company in Milwaukee which was about to abandon its seamless department and confine itself to full-fashioned hosiery, the full-fashioned part of the business being profitable and the seamless running in the red. The local union called on its national office. It so happened that the national office of the union had a very competent man whom they sent out and who spent about a month studying that department. He set up a technical programme which involved 195 changes of one kind or another and which will take about two years to put into effect—they have been at it for about 15 months. That department of the plant is now in the black and it will get further in the black as the programme is completed.

The company has lowered its selling prices in order to meet competition and yet with the help of the union it has managed to cut operating costs so that there is a little margin and the jobs of about 600 people have been saved in that department of the business. I could give you the opposite kind of a case where the co-operative efforts have struck snags of one kind or another and which have not been so successful.

Below are Exhibited Materials from Three Companies, Dealing with the Relation of the Company Training Program to That of Vocational Schools; Instructional Material for Learners and Job Descriptions for Use In Training.

I Mechanical Trades Training

Reports from Three Companies

THIS recommendation is based upon a consideration of the following:

1. What other companies in this area are doing and the results they are getting.
2. What the local Vocational Schools are equipped to do and their willingness to do it.
3. The situation existing within our Works.

Training by Other Companies

SO FAR as we have been able to determine, no other local company attempts to carry on any training which can be done for them by local educational institutions.

In the mechanical divisions the general plan is to conduct the shop training as a part of the regular production job, while the related classroom instruction is done by the vocational schools on company time. In many cases this is done at the schools, when they are near, during the day. If the school is not near the instructor goes to the plant and holds classes there during working hours.

Larger companies subscribe to programs of this type. Small companies have the vocational schools conduct both the shop and classroom instruction on the employer's own time.

In a large percentage of these cases the trainees are indentured apprentices. However, the schools do not require that they be indentured as does the Federal set up, but they must be working in industry at the same kind of work they are studying.

The shop instruction in most of these industries is carried on by a planned job

NO.	STANDARD	TIME ELEMENT	CONVENTIONAL	NEW METHOD
1	Grasp east side of strip.	"Mikes" sheets in piler for gauge.	Throws heavy sheets off south strand.	Grasps west side of strip.
2	Feeds strip into pinch rolls.	Throws heavy sheets into piler.		Guides strip into pinch rolls.
3	Lowers pinch roll onto strip with air valve control.	Raises piler back strip with air valve.		Crosses to west side of strip.
4	Feeds strip into slitter knives with pinch roll catch button.	Pushes out lift.	Pushes out lift.	Grasps bottom of strip with knives.
5	Goes to north side of slitter knives.	Helps to move strip up.	Helps to move strip up.	Waits for strip to be properly shearing.
6	Grasp east side of strip.	Inspects for scratches and bad edges.	Sets skids in piler box.	Grasps east side of strip.
7	Feeds strip from slitter to roller level with pinch button.	Goes to slitter south side.	Lowers piler back strip with air valve.	Guides strip from slitter to roller level.
8	Runs strip into roller level with roller level inch button.	Makes strip and gauge where proper gauge begins.	Sets gauge piece against back stop.	Crosses to south side.
9	Feeds slack in strip with slitter inch button.	Returns to conveyor table.		
10	Cuts off heavy sheets by turning master switch on.	Throws off heavy sheets.	Throws off heavy sheets.	Taken and moved to rough master.
11	Runs 1 waster into piler box.		Guides waster into piler box.	
12	Sets counter at zero.	Begins upskids.		Pushes up with wasters.
13	Turns counter switch to on.			
14	Starts conveyor with conveyor control.	Piles scrap and wasters.		
15	Starts shear with master control.		Keeps pile straight in piler.	
16	Maintains proper loop between slitter and roller level with slitter rheostat.			
17	Increases speed with master rheostat.			
18	Maintains proper speed of conveyor table with conveyor rheostat.			
19	Inspects lift if desired.	Relieves shear man when he wishes to check lifts and wasters.		
20	Tries to fill information on coil ticket except number of sheets.			
21	Checks next coil ticket for order, size, gauge and heat.			
22	Stops counter at end of prime sheets.			Opens cones. After counter is reset, goes on.
23	Stops conveyor with wasters and heavy sheets on conveyor.	Mikes sheets in piler.		Removes block from in front of coil and push coil into cone.
24	Writes number of sheets on coil ticket.	Removes sheet.	Returns to item 1.	Turns cone control to in and elevator to "up" until the rollers are separated against coil.
25	Clears slitter knives of scrap.			Removes wire from coil.
26	Goes back to start new coil.			Crosses to west side.
27	Return to item 1.			Return to item 1.

When a three man crew is used the number 1 helper will pile the sheets in the piler, make for gauge, and take care of the piler box. The number 2 helper will start coils into the line, pile scrap and throw on waster sheets and heavy gauge. He will, also, bring up skids for the piler box.

rotation for definite periods of time for each assignment. Also in most cases the trainees are covered by age and rates of pay limitations.

The development of these programs for each industry is done largely by the vocational schools.

Vocational Schools

THE vocational schools are very well equipped for training in the mechanical trades. Not only are their shops well equipped, but they are better equipped than is industry for developing related material and giving related instruction. They have better classroom space and equipment and better trained and more experienced instructors.

Some of them have very fine metallurgical and electrical laboratories which are much superior to anything most industries can boast of. They are better supplied with funds with which to properly finance such programs. They are also supplied with better trained supervisors for this kind of work, and can secure State and Federal aid in solving their trade and instruction problems.

In conducting such training they usually use the same instructor for both shop and class instruction for a particular group.

The schools are very cooperative and are more than anxious to aid industry with its training problems. They will put each individual on any particular shop assignment at any time the employer wishes, and will use the related material prepared by the employer and will conduct the class in any manner the employer desires.

These vocational schools are equipped to train in levels of skill corresponding to our labor grades 4, 5, and in most cases, 6. They can cover these levels in lathes, mills, grinders, drills, punch presses, hand screw machines and shapers.

Our Works Situation

EFFERENCE with our Training Program has brought to light some undesirable as well as desirable features.

Efficient and economic training can only be done in general by a full time shop instructor. The production supervisor usually is neither capable nor has the time to give to shop instruction.

The method of depending upon line supervisors to recommend the group from which trainees are selected is not conducive to best results. He cannot know anything about employees' abilities and capacities except as indicated by the job they are doing, and he does not know enough about the qualifications required by the training program.

The related classroom instruction is not closely enough related to the shop instruction. In many cases this is due to our inability to develop related material fast enough to keep up with the expansion of the shop program.

Promotion training cannot be efficiently done in the lowest levels of skill, and

does not work well in small parts production shops that employ only the lower grades of skill.

The program is not properly sold to the line organization and is not sold high enough up the line at the beginning.

Trainees classified under labor grade 5 or better can be trained more economically, and are received better by line supervisors because they have greater versatility, and usually greater productivity. Also they require less supervision and less instruction.

Most of these trainees who have real mechanical ability and ambition have shown a willingness to take additional training in outside schools on their own time.

Recommended Training Set-up

IT is our recommendation that future training programs for the mechanical trades be set up under the three following classifications:

Job Training

THIS training should be conducted by the line organization, and should carry the trainee through the lowest levels that is, labor grades 1, 2 and 3. In this level the trainee would become acquainted with company methods, the use of small tools, measuring instruments, safety, etc., and he would have an opportunity to prove he is a worth while employee.

This training should aim at bringing those with the greater capacity up to grade 4 in all the work of the particular shop. Those who do not seem to have all around capacity should be brought up to grade 4 in the one or two skills for which they seem fitted.

All job training should follow a planned progression within each shop and the Industrial Relations Branch's only part in this training would be to help the line set it up, when and if called upon.

In some few such cases some classroom work may be desirable. This program should cover the employee's first year of service.

Vocational School Training

AT THE end of the job training program the outstanding trainees should be encouraged to go to outside vocational schools for further training. These schools can train through our labor grades 4, 5 and in most cases 6.

It should be an established policy that the company will do only such training as the employee needs, and cannot get outside on his own time.

It is our feeling that the company should cooperate with these schools to the extent of encouraging desirable employees to take their courses, furnishing the

schools with certain related material with which to supplement their own, and having one coordinator to visit the schools periodically.

This coordinator would have no contact with the employees. He would see that proper notations were made on personnel records of those taking courses and see that the individual's supervisor was kept informed on the progress made.

Promotion Training Program

THE objective of this program should be to develop the higher levels of skill and should include only outstanding men from the Vocational School programs. This training should start with not lower than Grade 6, and should be open only to individuals, who by their work in the Vocational Schools, have demonstrated their capacity to become highly skilled specialists, detail makers, instrument makers, machinists and toolmakers.

This group should be the only group which could be considered as analogous to apprentices. This training must be done by the company, because the vocational schools cannot carry on training in these levels. The type of operations at this stage would call for making parts too expensive for the schools to make without a market for their disposal. Also it is at this level that potential supervisors, engineers, designers, etc. should become distinguishable.

This program should be set up along the lines of the present promotion program except that one hour per week of classroom work should be sufficient at this level. Also a few well equipped shops should be selected to do all the training and it should be handled by a full time instructor in each shop. The people handling this work should come under the Division Managers.

The Industrial Relations Branch's responsibility should consist of helping to establish the program, handle necessary transfers from one Manager's organization to another, and coordinate the program to see that the methods used are standard in all organizations.

Training never has been and never will be done properly when the shop supervisor is directly responsible for training and when those responsible for *promoting* training report to the line organization.

II Job Sheets for Learners

SPEED in training, and the final skill of the man trained, is definitely increased by the use of good training material. This is best worked out by the personnel department, in consultation with the line organization.

There might be developed job sheets for each operation, these to be mimeographed so that one is available for each man or boy being trained. Economy in time of instructors is also obtained, because intelligent learners can be largely left to themselves, and the instructor's time be devoted to those who learn more slowly.

Another advantage is that from the start the young worker learns to work on his own from written instructions, blue prints and specifications.

Below are given, as examples, two such job sheets, used in a steel mill.

Beveling with an Oxy-acetylene Cutting Torch

Specification: Bevel edges of scrap plates.

Purpose: To become familiar with the use of the oxy-acetylene cutting torch for beveling.

Materials: Supply of scrap plate $\frac{1}{4}$ " to 1" thick.

Tools: Oxy-acetylene cutting outfit,
Steady rest.

- Procedure:
1. Select convenient table or bench to work at and provide yourself with an ample supply of scrap plate from the scrap box.
 2. Select piece of scrap having a straight edge at least six inches long, and place piece on table so that its straight edge extends a few inches beyond the edge of the table.
 3. Place steady rest on piece to be cut. Have edge of steady rest about an inch from edge of piece.
 4. Hook up cutting outfit.
 5. Put on goggles.
 6. Light torch and adjust flame for cutting.
 7. Tilt torch so that tip makes about a 45° angle with plate to be cut.
 8. Preheat spot at which cut is to be started, open cutting valve, and proceed to make the cut.
 9. Repeat above operations, making several cuts at various bevel angles: 30° , 45° , 60° .

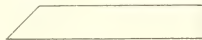


FIG 1

10. Double bevel the edge of a plate by first beveling one edge, and then turning plate over and beveling other edge (fig. 2). Be sure that cuts do not overlap. It is advisable that the two cuts *do not* meet (fig. 3) for this prevents any change in the original dimensions of the plate. Strive to obtain good, clean, even cuts.

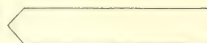


FIG 2

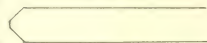


FIG 3

11. Return all scrap to scrap box.

12. Take down and put by cutting outfit.

Questions

- What is the purpose of beveling? When is a single bevel used? a double bevel? None?
- Does the position (with reference to the direction of torch movement) of the pre-heating holes in the tip have any effect on the appearance of the cut? Do not answer until you have made cuts with the pre-heating holes in each of the positions shown below.



- Sometimes the slag from the burning process is easy to remove, and other times, very difficult. Explain.
- Explain in detail just how a tip should be cleaned. What are the improper methods, and what makes them such?
- What is the cost of a medium size cutting tip?
- How does the volume of weld metal compare in the two cases shown below?



- References: Job sheet 1. How to hook up an oxy acetylene outfit.
 " " 3. How to light and adjust flame.

Oxygen Lance

Specification: Pierce hole through piece of steel two inches or more in thickness.

Material: Piece of steel two inches or more in thickness,
Length of lance pipe "Washed for Oxygen".

Tools: Lancing Regulator,
Wrenches.

Lancing hose with proper connection on each end.

Procedure: 1. Place piece to be lanced in convenient position, with axis of hole horizontal (fig. 1).

2. Attach regulator to oxygen tank or tap.

3. Connect hose to regulator.

4. Insert length (or $\frac{1}{2}$ length) of pipe which has been "washed for oxygen."

5. Hook-up cutting or welding outfit, W-1-O.

6. Station helper at oxygen valve. Agree on signal you will give him to open oxygen valve.

7. Have other helper light and adjust torch.

8. Have other helper heat to a bright red, the spot where hole is to be started (fig. 2).

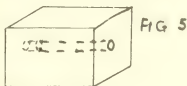
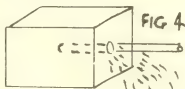
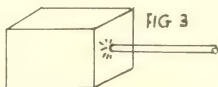
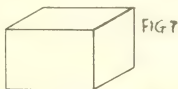
9. Remove torch and place end of lance pipe against heated spot (fig. 3).

10. Signal helper to open oxygen valve *just a little*.

11. Feed pipe into hole, twisting it back and forth and occasionally withdrawing it a half inch or so.

12. Signal for more oxygen before continuing, if necessary. Use just enough to keep the cut going.

13. When hold is completed, signal helper to shut off oxygen and withdraw pipe from hole.



- Questions:
1. Would a heavier-walled pipe give better results?
 2. If you were lancing a hole through a piece of steel 2 feet thick, and the cut stopped when you were half way through, how could you continue?
What would be liable to happen if a welding regulator were used?
 4. What causes a regulator to freeze?
 5. How much does a length of lancing pipe cost?

References

- Job sheet 1. How to hook up an oxy-acetylene outfit.
 1. How to light and adjust flame for welding.
 1. How to light and adjust flame for cutting.

III Job Descriptions

A good job description, showing the duties and responsibilities of each worker, is almost indispensable for increasing the efficiency of the men, particularly newly hired ones.

It offers a check list which aids the foreman in seeing that each man is doing what he should properly; it aids in identifying the weak points in the performance of a man, or a group working together; it aids merit rating, and offers a good guide for transfers and promotions.

Where there is a job training program it makes this more efficient, because the instructor can readily make a check list of points to be watched, and then need train only on weak points. If operator instructors are used it makes their instruction more systematic.

Below is given a job description, which may serve as a model for those wishing to work out job descriptions, or to relate the ones they have to other personnel practices, particularly training.

Job Description, Rotary Shears

SHEARING is the process of cutting cold reduced strip into proper lengths and widths to meet the requirements of the customer's order. The sheared sheets are oiled, piled, weighed, and pushed down the ramp to be picked up by the Annealing Department.

Duties and Responsibilities

SHEARMAN. The shearmen are responsible for the quality of the product, for the work of his crew, and the safety of the men working on and about the shear line. Orders must be sheared properly, oiled when necessary and piled in a straight even pile. The correct number of sheets for each lift must be recorded on the coil ticket, and no shear scratches or marks can be allowed on the finished product. The shearmen will measure the length and width of each new order to insure correct shearing and will inspect at frequent intervals for scratches and bad edges to check the work of the first helper. When changing sizes the shearmen will instruct the 1st helper to set the end knives, and he will set the side shear knives with the help of the number 3 helper. He will see that the 1st helper is given an opportunity to mike the strip before shearing is begun and at the end of each coil.

1ST HELPER. The first helper is responsible for miking the sheets for proper gauge at the front and back end of each coil sheared. He will set the gears controlling the length of the sheets at the instruction of the shearmen, and inspect the top sheet of every lift for shear scratches and defects. His duties are to work with the 2nd helper in keeping the piler box ready for each lift.

Second Helper. The second helper's duties consist of piling the sheets in the piler, and setting the piler box for each new lift. He is responsible for keeping the pile straight and even.

Third Helper. It is the duty of the third helper to start the coils into the shear-line and pile scrap and waste sheets in their proper pile. He will bring the coil runners from coils next to be sheared to the shearman, and will help the shearman set the side shear for changes in width.

The duties of the helpers may be alternated to relieve monotony, but the responsibilities of "miking" and setting the knives and inspecting will remain constant to prevent confusion in placing blame for possible errors.

Peace Time Economy is Permeated with Inefficiency and Waste, so Every Effort Should be Made to Place a Given Output in the Hands of Consumers in Wartime with Less Expenditure of Productive and Distributive Resources than Before the War.

Economist Views Personnel Practices

By H. FABIAN UNDERHILL

University of Illinois,
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FOR over a century economists have maintained that under competitive conditions the best way in which labor might increase wages was by increasing its productivity and that management's best method of increasing net returns was to cut cost per unit—preferably by increasing productivity. Almost unanimously economists have condemned attempts to increase the income of an individual or group by monopolistic practices that would reduce the social (or "national") income.

Scientific Management

UNDER modern industrial conditions, however, it is difficult for the individual worker consciously to increase his output and impossible for him to do so on the assembly-line, though it still remains possible by means of a "slow down" or by outright sabotage to curtail production. Thus, where large groups work together it must be the responsibility of management to see that conditions are conducive to maximum output. With this in mind many economists hailed the advent of scientific management at the end of the nineteenth century.

But they forgot what many business men forget: that conditions of work include more than physical environment. And from the dawning realization of this sprang modern personnel management with its emphasis on the human or psychological elements. Except for price or wage incentives the economist is not generally equipped to deal with these elements, but he may perhaps be permitted to examine the methods used to keep the workers satisfied, in order to ascertain their possible effects, not on the individual firm, but on the economy as a whole.

Wage Incentives

TO AN EMPLOYER wages are frequently the most immediate problem to be met. The most obvious method of wage payment, though perhaps not the most common, is the straight piece rate. Provided the rate is properly set to award the worker the marginal productivity of the group, this method is economically acceptable. With a piece rate per piece, the burden lies upon the employer to improve processes in order to reduce costs and prices, and since he bears the major burden he should reap the major benefit of such a reduction. If, however, by increasing their pace the workers are able to produce more units on each machine, some, at least, of the gain from reduction in unit cost should inure to them.

That this actually occurs is shown by plants that utilize a graduated incentive wage such as the Halsey or Gantt plan. Such wage systems are, of course, rarely adopted with the sole view of paying the worker the additional amount that he has saved the company. More generally the primary purpose is to induce the workers to greater efforts. A psychologist rather than an economist must be asked to examine the effectiveness of this incentive, but in practice it usually works.

There are, however, variations on this theme that may be examined economically. One system, for instance, gives a part of the extra amount to the management, especially the foremen. Where the management's own efforts have been exerted in coordinating production, as must necessarily be the case in assembly-line work, this is a fair method. However, if the increment depends solely on the worker's own increased effort or learning, then he should receive the gain. The proportionate shares would, of course, have to be calculated in each individual case.

Time Payment

PERHAPS the most common type of wage system is still the time payment. This has the social advantage of enabling employed workers readily to calculate their incomes and to budget their expenditures, and is occasionally supplemented by the guarantee of employment. Business, however, finds it more difficult to anticipate the unit cost of production, though perhaps this is the only feasible method of paying wages for non-routine work. Payment by time, whether it be hour, day, or month, makes it harder for the economist to determine whether workers are obtaining a wage equivalent to their marginal productivity, but does not economically invalidate this method of payment.

Another suggestion that has recently been popular is the use of the sliding scale for setting wage rates. In the form that makes the wage rate depend on the price of the product produced by the firm this is obviously another method for sharing the risks of management with the workers, and all previous criticism of this device still holds. Its one advantage would seem to be the possibility of retaining workers while their marginal productivity is temporarily low, instead of laying them off or seeking other means of stabilizing employment. On the other hand, in a secu-

larly declining business it may be a means of retaining workers who might better seek places in younger industries. Why should wages depend on the prosperity of just one industry?

Cost of Living Base

THE other common form of sliding-scale wage, in which wages vary with the cost of living, is more defensible, for cost of living often varies with business activity and the returns to the other factors of production. Even in this case, however, there must be provision for periodic revision of the basic rate in order to prevent the complete stagnation of real wages. Thus it is obvious that to base arguments against a wage-increase solely on comparative costs of living is at least ingenuous and at worst indicative of a desire to prevent an improvement in labor's wellbeing.

For many years employers and employees have railed at each other over the restriction of output. Where such restriction is instituted by an employer in an attempt to spread seasonal work over a longer period, the economist will commend the procedure, for in this manner less idle equipment will be needed, the overhead costs will be cut, and prices to the consumer may be reduced. The advantages of needing a smaller amount of finance capital with less risk to the individual investor and of reducing the amount of seasonal unemployment are also obvious. In reducing unemployment the employer may under many of our state unemployment compensation tax laws qualify under merit-rating provisions for a further reduction in his individual tax costs.

Restriction of Output

ON THE other hand employers often reduce output in order to maintain or raise prices. Measured by the economic criterion of providing maximum satisfaction to the consumer, this practice is obviously unsound.

Unfortunately, an employer's attempts to restrict output, regardless of his purpose and the economic validity thereof, are likely to be met by a corresponding restriction on the part of his workers. Their natural reaction when they learn that a production quota has been set for a given period is that they will take at least that amount of time to achieve it. It is of little use to blame the workers for this attitude: it is purely a defense reaction. But the employer can and should take prior action to prevent it by means of adequate assurance that their income for the period will not be less if the production is more rapidly achieved. Indeed, a monetary value may be added to much prized leisure time by the use of incentive wages that give the workers an added reward for achieving the quota in less than the full period; this, however, will still leave the plant standing idle a part of the time.

One may often blame the workers for still further restricting output in the hope of forcing the employment of more men. In the short run this may, indeed, have the desired effect as an employer tries to fulfill his commitments. With a piece-rate method of payment such a practice raises costs only as more machines must be in-

stalled for the additional workers. Nor will the reduction in their earnings be offsetting to the employees. But a small output per employee with the same wage would raise the unit cost of production, so that only when the working man has previously been underpaid (with resultant "unearned" gains to the man and his family) can he be kept at the same level; in other cases they must rise to offset the increased cost. This will generally reduce the amount of product demanded, and may thus in the long run curtail rather than expand employment.

Workers Know Little Economics

THE explanation for such conduct on the part of labor is simple. Seldom are workers well versed in economics and able to predict the long run results; since in general they live from hand to mouth they rarely think in terms of other than the short run. They also have the excuse that many employers restrict output, and the old proverb that what is sauce for the goose is also sauce for the gander is widely believed. Furthermore, where labor is strongly organized it is a sound business tactic to create a scarcity value for its services in order to obtain a larger return, although from an economic standpoint this will injure the consumer.

In general, then, it may be said that while the motives for restricted output may be readily understood, the practice must be condemned unless undertaken for stabilization with the cooperation of both employers and employees.

The economist may note with approval the development of the practice of paying workers adequately for worthwhile suggestions. If an employee adds to the productivity of the plant, he should be rewarded. Psychic income is rather outside the ken of economics, but it seems likely that public acknowledgment of the author of the suggestion would add to the satisfaction and efficiency of the working force. Of course, if a man is hired solely to undertake experimentation with a specific understanding that all discoveries belong to the employer alone, no further reward is warranted.

Viewing the Whole Economy

BOTH efficiency experts and personnel managers seem to have the idea that it is the man who must fit the machine or process rather than alter the machine to fit the man. From the standpoint of the individual enterprise with an already large investment in fixed capital this is quite understandable, but it is by no means certain that there is only one best way of performing any task; it may well happen that, regardless of training, another person could perform at least as well but in a different manner.

Yet it may be that an economist's criticisms of the methods used in personnel work are unjustified. For personnel administration looks at the matter from the standpoint of the individual firm and its welfare, whereas the economist is supposed to view the whole economy with special reference to the maximum satisfaction that may be afforded to the consumers.

Book Reviews

Book Review Editor, MR. EVERETT VAN EYK

Commissioner of Commerce, Department of Commerce

INDUSTRIAL RELATIONS IN WARTIME

Bibliography, compiled by Waldo Chamberlin. Palo Alto, Cal. Stanford University Press, 1940. 239 pp. Price \$1.00.

Reviewed by Book Review Editor

With the United States facing new problems approximating wartime conditions, this annotated bibliography covering industrial relations in Great Britain between 1914 and 1918 is particularly significant.

The book is a catalogue of a small portion of the monumental collection in the Hoover Library on War, Revolution and Peace at the Stanford University. Sections are devoted to society publications and periodicals; general works including reference sources, statistical abstracts, private and governmental publications. Material is also arranged under Specific Wartime Problems of Wages and Hours; Welfare and Working Conditions; Women in Men's Jobs; Dilution, Substitution and Transfer of Workers; Demobilization and Reconstruction. Other sections are devoted to arbitration and conciliation in wartime; government control of factories, conscription of labor and capital and government ownership in certain industries.

The publishers promise another bibliography covering the same material for Germany, chiefly the period 1933-40, to be ready soon.

WAGE AND HOUR MANUAL

Compiled and Published by Bureau of National Affairs. Washington, D. C., 1940. 648 pp. Price \$5.00.

Reviewed by Book Review Editor

Wartime conditions may well be expected to intensify certain phases of labor relations rather than nullify them. One such set of problems is wages and hours. Well informed persons look to the Fair Labor Standards Act to play an important part in our armament era ahead.

The Wage and Hour Manual contains all the important source material on federal and state regulation of wages and hours. As a reference source, it gives the

under the Act, the documents which make up its legislative history and the Rules and Regulations issued under the Act. As a guidebook, it furnishes ready information on minimum wages, maximum hours, overtime payments, keeping records, Interpretative Bulletins, opinions of the administrator, court rulings, and official decisions on employee questions.

The second part of the manual serves as a guide to regulations regarding wages and hours that must be observed in contracts with the Federal Government. The third part digests state statutes authorizing or imposing regulation of wages and hours on intra-state industries, together with the wage orders which have been issued under such orders.

This work will be cited in courts of law as "1940 WH Man." It is authoritative and complete, and should be familiar to every personnel executive concerned with wages and hours.

HOW TO TRAIN SUPERVISORS

MANUAL AND OUTLINES FOR DETERMINATE DISCUSSION

By R. O. Beckman. New York: Harper & Bros., 1940. 290 pp. and bibliography

Reviewed by MACK STOKER

This is a very excellent book, one that should be within reach of every man in industry who has anything to do with training. The subject matter is very well organized and clearly presented. It gives readily usable answers to practical questions encountered by conference leaders.

The subtitle is, however, a more accurate description of the contents of the book than is the title, for this is essentially a book on the leading of one kind of conference, or *determinate discussion* as Mr. Beckman chooses to call it. As such I do not see how the book could be improved very much. Its weakness lies in its attempt to sell one form of conference as a new device supplanting conference methods.

Since this may be a matter of opinion, it demands some support. In the first place, I cannot accept his definition of a "conference." It would not be accepted by any conference leader I know. Without exception, they would call such "conferences" mere bull sessions and would condemn them as strongly as Mr. Beckman does.

In the second place, I cannot see "determinate discussion" as a new development in group discussion technique. Mr. Beckman has contributed some refinements and has done a beautiful job of presentation, but basically the thing he is selling is a well-known and long-tried form of conference, whether you call it "determinate discussion," directed conference, or developmental teaching.

Thirdly, while the directed conference is a teaching tool that has proved its effectiveness for at least twenty years, it is effective only when restricted to the type of situation for which it is designed—and it is not designed to take the place of what is commonly referred to as a conference and more technically known as a free conference. True, the borderline between a free conference and a directed conference gets very thin at times, but the basic psychological difference is important. The directed conference is essentially a selling device. Somebody knows the answers, writes them up and then the conference leader hornswoggles the group into underwriting the answers as their own. The free conference, on the other hand, is a tool for developing the answers out of the experience of the group. Obviously the methods will differ; what's more important, the supporting attitude of top management must be vastly different.

Used with the recognition of these weaknesses, Mr. Beckman's book should be of great value for conference leaders; for the training of leaders of "determinate discussion" it should be almost ideal.

STUDENT PERSONNEL WORK

By E. G. Williamson and T. R. Sarbin. Minneapolis, Minn: The Burgess Publishing Company, 1940. 115 pp. mimeo. Price \$1.75

Reviewed by Book Review Editor

University and school personnel officers will find the recent survey report of the University of Minnesota to be a good factual picture to the student personnel work carried on at that institution. Minnesota has achieved a position of national leadership in developing services created to assist students in their personal problems, and the authors have prepared the study as an interesting reference work as well as a report of the student personnel program for the president's committee.

The work is analytical and exhaustive in its coverage of accepted personnel practices today in universities and colleges. It is contended that student personnel work today "is a supplementary type of teaching" with dual functions: the first responsibility is to help students master problems that interfere with their academic progress; and the second responsibility, to overcome the non-intellectual problems which contribute to the students' total life adjustments.

Chapter VI, Implications of the Survey, is a particularly good appraisal and statement of the philosophy of student personnel work which can be applied to any educational program today. In discussing the total educational process of the university the authors concluded that "Student personnel work is now widely accepted as an important and integral part of higher education. It should be studied with a view of increasing its organizational effectiveness to the maximum."

This report is recommended to all persons engaged in student personnel work.

DICTIONARY OF OCCUPATIONAL TITLES, PART I

Prepared by Division of Standards & Research, United States Department of Labor.
Washington, D. C. U. S. Government Printing Office, 1939.

118 pp. Price \$2.50.

Reviewed by Book Review Editor

In the broadest sense this is one of the most important personnel projects of recent years—a dictionary of job definitions. Although it has been prepared primarily for the use of public employment offices, it is a standard source of job information and techniques and should prove to be a great tool for all those concerned with occupations, employment, counseling and management.

Employment interviewers, counselors, and industrial relations executives cannot be expected to have a range of job knowledge and experience that will cover every conceivable need. They need dependable source material, and such a work-book as this one is well worthy of recommendation to all who work with jobs, their definitions and classifications.

The development of the occupational material is divided into two major phases: a study of jobs as they exist in the country today, and an analysis of workers to discover and describe patterns of skill and ability. It is apparent in glancing through the definitions that detailed studies of workers have been made to determine skills, abilities and personal characteristics needed on the jobs. We find Personnel Manager defined and classified as follows:

MANAGER, PERSONNEL. Director, personnel, any ind., 4-39 83. Formulates policies relating to the selection, training, promotion, welfare, compensation, recreation and discharge of employees, and other employer-employee relationships, supervising subordinates engaged in executing the policies or performing these duties himself; directs the hiring of employees, *ref.* MANAGER, EMPLOYMENT; the training of the employees, *ref.* DIRECTOR, EDUCATIONAL, WELFARE ACTIVITIES, *ref.* DIRECTOR, WELFARE, and recreational activities, *ref.* DIRECTOR, RECREATION I. The scope of personnel work and the duties and responsibilities vary widely in different establishments, depending upon the policies of the management.

Another interesting recommendation of the work, aside from its own importance, is the panel of personnel authorities who served on the technical board of the project. Among them we find J. Walter Dietz, Ismar Baruch, Bryce M. Stewart, W. V. Bingham, Edwin A. Lee, Donald G. Paterson, Morris S. Viteles, Isador Lubin and Thomas G. Spates.

THE COLLECTIVE LABOR AGREEMENT

By Elias Lieberman. New York: Harper & Bros., 1939. 233 pp. Price \$3.00

Reviewed by Donald McClure

Here is a book that seems to have become a catalogue of collective agreement practices and terms. The author is a labor attorney and has not concealed the labor

point of view in preparing his material. The value of this work lies principally in its factual material (clauses, sample contracts, decisions, etc.) and the legalistic reasoning and explanations that account for the federal labor law developments.

The first part of the book deals with historical background, legal status and negotiations. Part two dwells on specific contract wording with specimen clauses and notes on problems and legality. These divisions of the book are followed by an appendix containing a list of union organizations, by industry and trade, whose collective labor agreements are included in the study. A Bibliography, an index of cases cited and an index of clauses are of special value.

The second part is the most comprehensive and helpful to the personnel manager who would know his labor relations. Here we find problem headings, those which confront employers and employees in negotiating contracts, the law involved in the specific problems, the provisions of existing contracts covering such problems and by who approved. To those whose job it is to participate in negotiations, or to the uninitiated who are expected to know, much valuable material is to be found here. It is a practical treatise and can be used for immediate reference.

INDEPENDENT LABOR ORGANIZATIONS AND THE NATIONAL LABOR RELATIONS ACT

By Frank T. Bow. New York: Prentice-Hall, Inc., 1940. 120 pp. Price \$2.00

Reviewed by Book Review Editor

Under the NLRA employees are free to refrain from joining any labor organization at all or to organize and bargain collectively through any kind of labor organization which they desire, *provided only that their employers do not interfere with or support that labor organization in any way.*

On this thesis, the premise of the National Labor Relations Act, the author has set out to show employees, who may not wish to become members of a national labor organization, how to organize their own independent organization for the purpose of bargaining collectively with their employers and at the same time enjoy the protection of the NLRA in so doing.

The author contends that Congress had no intention in passing the Act, to confine representation for collective bargaining to the national unions. Chapters I and II treat of the Act, Collective Bargaining and how it applies to the independent organization. Chapter III is devoted to the Constitution and the mechanics of setting up an independent labor organization, including membership, initiation fees, dues, assessments, meeting plans, elections, promotion ideas, delegates, "don'ts," etc. The appendix gives an excellent example of a constitution and the reference table of cases consists of nine outstanding decisions—the structure on which the labor law has been built.

Able legal counsel is evident throughout the text, and this small book should prove very helpful and encouraging to some employees.

TRAINING PROCEDURE

By Frank Cushman. New York: John Wiley & Sons, Inc.,

1940. 233 pp. Price \$2.00.

Reviewed by Book Review Editor

Improvement in the performance of work is the principal objective of the scope of the material covered in this volume. The author appeals to the interests of all executives, as well as the man in charge of training, and ventures across the whole field of training for employed personnel.

The work is more than a supplement to the author's earlier volume, *Foremanship & Supervision*, in which various phases and uses of the conference technique are advanced. Rather in this book the reader feels he has a fairly comprehensive treatment of job-training as a whole. The size of the volume might suggest the term "candid"—brief, direct and complete. The text material and style of writing is sharp and clearly written. Each chapter is laden with practical training ideas and methods that have been lifted from the daily work experiences of training experts.

In sharing opinions on this book with a Pacific Coast authority on training and conference leading I was surprised to have him rate the work as the best material available today on the real fundamentals of job-training and directing leadership. And now that the national defense emphasis is on training—quick and intensive instructional procedure—this phase of industrial management becomes of extreme importance.

LABOR RELATIONS IN THE AUTOMOBILE INDUSTRY

By William Heston McPherson. Washington, D. C.: The Brookings Institution,

1940. 173 pp. Price \$1.50

Reviewed by Book Review Editor

Labor relations in America may well see itself mirrored in the mass production industries of which the automobile has taken the unique lead.

In this little book we find a thorough unvarnished picture of an industry as it has been organized by the U.A.W. An industry hardly thirty years old, suddenly finds itself within a period of three years, acknowledging the strength and influence of unionization and seeking to share in some of the basic problems of labor management.

The chapters on Unions, Union Recognition and Collective Agreements, and Grievance Procedure are particularly worth noting. The chapter on Productive Efficiency is a timely contribution in today's problems of labor control and industrial management. Pressures and cross influences cut sharply at the production line, and getting out the day's work under the present state of collective bargaining is a fitting chess-move for all of management to study through.

BOOK REVIEWS

The story of the U.A.W. in automobiles is a concise report of labor relations today in one industry, but thorough and typical enough to have predictive value to all industries.

Question re: INDUSTRIAL CONFLICT

Let a reviewer blunder or err but a trifle—and publisher's clouds of thunderous protests gather swiftly as if they had been lying in wait.

In the September issue of *THE PERSONNEL JOURNAL* we appraised *Industrial Conflict*, the first year book of the Society for the Psychological Study of Social Issues, called it one of the important works of our time in such a field . . . and added, that to our surprise, it was apparently being quietly suppressed.

The publishers have informed us that *Industrial Conflict* has not been subjected to any edict so far as they know, is not being suppressed in any manner, nor withdrawn from the bookmarket. Therefore, we would appreciate learning if our readers have any difficulty in securing this book.

BOOK REVIEW EDITOR.

PERSONNEL Journal

The Magazine of

LABOR RELATIONS AND PERSONNEL PRACTICES

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A Company which Has Recently Signed an Agreement with a Labor Union for the First Time Holds a Series of Conferences with Its Supervisory Force to Find Out Their Reactions and to Aid Them in Meeting Their New Problems

Supervisory Conferences on Union Relations

Report of Works Manager

M^{R. VICE-PRESIDENT:} We have completed one round of union relations conferences with supervisors of hourly rated people in connection with the program approved by you in your letter of January 29, 1941. For your information I am attaching a report of what transpired in these discussions.

No attempt has been made in the report to analyze and interpret the "trends of the discussions" as we feel that this should not be done until after one or two more rounds of meetings are completed. Further conferences should give us sufficient material on which to base a more definite statement.

Supervisors Tell Their Own Story

THE interesting part of the report is the difference between the way in which first line supervisors describe their problem, and the way in which we have regarded it. You will recall that one of the reasons for this conference program was the thought that the first line supervisor, because he played practically no active part in the development of the union agreement was badly in need of participating in discussions which would bring out the supervisory practices necessary to the successful operation of the new union relations. This was in line with the emphasis we have always placed on the importance of the first line supervisor, which has led us to make extensive plans, in the past, for improving the *quality* of this group.

The discussions quoted in the attached report indicate that the major difficulty lies in the fact that first line supervisors feel they are not a part of management and consequently are forced to identify themselves, in their thinking, with the workers'

group. That is to say, they are in a conflict which would seriously interfere with any attempts to train them in the use of one set of rules and practices, when in reality they act and live in accordance with another set. This, of course, is anticipating that the final findings will substantiate the earlier ones. If they do, I believe we will need to place more emphasis on the problem of learning how to organize our worker groups in such a way that these conflicts may be avoided and eradicated, before we go any further in developing methods of selecting and training supervisors.

Supervisors Appreciate Conferences

SO FAR I have mentioned only the preliminary conclusions from this first round of meetings. There remains a question as to how the supervisors feel about the conference program, and what benefit they derived from the discussions. While there is no concrete evidence to support a quantitative statement, there are two sources of evidence which indicate that a continuation of our original plan is justified. First, the members of the advisory committee, composed of representatives from each branch, definitely expressed the opinion that the meetings had been of value to the supervisors, increasing a better understanding of union relations and how they should function to the best interests of the company and employees. Second, comments were received from supervisors indicating that their general reaction to the program was very favorable.

One illustration of the sort of reaction we have received in a few cases may be described as follows: One supervisor immediately after attending a conference expressed dissatisfaction and disappointment because the group had not arrived at a definite conclusion or decision with reference to the proper supervisory behavior in particular situations. A few days later, however, when he was discussing this question with a member of the staff in charge of the conference program, he indicated frankly that the conference had made him realize that he was not well enough informed with regard to the union agreement as a whole, and with what other supervisors are up against, and had since not only reread the agreement but had discussed the various angles of the whole situation with other supervisors. In other words, he gave evidence that his thinking had been stimulated to a greater study of union relations and had actually gone out of his way to secure more complete information. We feel that if we can accomplish this same thing with the majority of supervisors, the conference program will be well justified. (*Signed*) Works Manager.

Report of Supervisors' Conferences on Union-Management Relations

THIS report is written in an attempt to summarize what happened in the first round of conferences with 450 supervisors on the general subject of union-management relations. It is obvious that it would be next to impossible, and surely inadvisable, to report fully the discussion that took place in 28 conference groups.

Yet it is equally apparent that it would be worth while to have a record of the more salient features of these discussions, as well as the significant trends which they seemed to take.

All Supervisory Force Included

It should be recalled that these conferences included all supervisors of hourly rated employees from departmental superintendents to first line supervisors inclusive in the Operating, Inspection, Technical, Engineering, Production and Maintenance organizations; that they were conducted by the Industrial Relations Branch supported by an advisory committee composed of representatives from all the other branches involved, and that the general objective of this activity was:

- 1. To determine what new problems, if any, had been injected into the supervisor-employee relationship by virtue of the union agreement.
- 2. To help the supervisor, by a process of conference discussion with men of his own rank, find the most rational and effective way of meeting these new situations.

For the purpose of clarity and conciseness, and not because it follows any pattern of presentation of material to the conference groups, the report will be divided into the following sections:

Section I. Method used in introducing the subject to the conference groups.

Section II. Topics which the discussion seemed to take:

- 1. The supervisor and his position with respect to union relations in operation.
- 2. The supervisor and the labor representative.
- 3. What the supervisor thinks about the functioning of the agreement.

Section III. Summarization.

Section I: Conference Method

VARIATIONS in the technique of presenting a subject to a group for discussion are, of course, numerous and dependent upon a number of factors such as how many members there are in the group, how well they know one another, how well they know the leader, how much they know of what they are in the conference room for, how they feel, and what they say. The conference leader is usually alert to detect these signs and "takes off" at the most appropriate point.

The customary procedure was to see that everyone in the group was acquainted and then consider the question: "What are we here for?" It was the leader's function to answer the question, which he did by reviewing briefly the history of union relations leading up to a union agreement by the company, and by explaining the objectives of these conferences. He pointed out that he was there as an observer and guide to the discussion, not as an instructor. He told the group that the company wanted to give them an opportunity to talk over their experiences with the

union, and get an expression of their thinking about it. If discussion did not readily develop from this introduction, then the leader presented some such question as the following for the group's consideration:

1. Is the supervisor in a different position now than he was before the agreement?
2. What does the union seek to accomplish?
3. Why have labor representatives through the plant?

Some groups responded quickly with thoughtful discussion, some became more emotional than thoughtful as individual members expressed their experiences and attitudes upon various phases of the subject; while a few showed some reluctance to talk and manifested only a lukewarm interest in the whole subject. The amount of discussion and the interest of the group in thinking about the subject at all seemed to be in proportion to the amount of experience or contact with labor representatives which individuals within the group may have had. In other words, supervisors who had had some direct experience with the union, such as an employee in their organization who had sent a complaint up the line or a shop committeeman who was fairly active seemed to have a keener interest in the conference and talked more freely.

Section II: Discussion Trends

ONE of the first trends to become noticeable was a marked tendency on the part of the conferees to talk about the agreement in terms of what it meant to them or their positions as supervisors. The successful functioning of the agreement from a broad company viewpoint did not seem to be as important an item for consideration as did the question of what is happening, or might happen, to the supervisor.

The earlier expressions took the shape of an apprehension or fear that the supervisor was in danger of losing some of his authority, prerogatives, or powers of discretion in dealing directly with employees. He could be "gone around" now with greater facility than before. To a certain extent he lost caste in the eyes of the employees, and labor representatives, who now had an easier channel for communicating their grievances directly to their superintendent or division head.

Supervisor's Position in Jeopardy

IN VIEW of this new contact on the part of the rank and file with the higher ranking supervisors, a waning of confidence in the ability of the lower ranking supervisors to correctly interpret company policies, and to adequately answer employee questions, was inevitable. Furthermore, employees encouraged by the new scheme of things, were likely (as already indicated by the petty nature of many items taken up) to make problems out of things which had never been considered as problems before, thereby reflecting upon the ability of the supervisor to handle his job.

All of these thoughts, indicating that the supervisor felt his position somewhat in jeopardy, were most frequently expressed by department heads, not so much, however, suggestive of his concern about his own position as they were of what the department head thought the first line supervisors might think about their status. The most ameliorative factor they could see in the situation was the tendency toward a uniform insistence that the supervisor "get in" on a complaint before it is taken higher up. Nearly all of the department heads were emphatic in their feeling that *something should be done*.

The first line supervisors, however, seemed more inclined to make a distinction as to kind of items which might appropriately be taken higher up without prior consideration by the supervisor. Matters affecting company policy over which the supervisor had no control, might, without minimizing the supervisor's position, be taken directly to higher management. The majority opinion, voiced most strongly by department heads, was that the supervisor should be consulted on all questions, either by the employee making a complaint or by the labor representative, before these questions could be discussed with top management. The minority opinion, voiced most strongly among the first line supervisors, was that an inflexible insistence upon this procedure would not be satisfactory.

First Line Supervisors Do Not Worry

LATER on in the series of discussions, when the conference groups composed of first line supervisors were heard, a trend different from that explained in the preceding paragraphs was observed. These men did not seem to feel that the union agreement was having any detrimental effect upon their status.

They admitted that perhaps a supervisor would have to be a little more careful and thoughtful now in dealing with employees; they admitted that the employee through his labor representative had a more definite assurance of getting his grievances heard, but they did not seem to feel that the union was jeopardizing their status or depriving them of any necessary supervisory authority. Neither did they feel that the agreement in itself was creating any serious problems for them.

On the contrary there were frequent expressions to the effect that the union was of some assistance to any supervisor who honestly tried to be fair and understanding in his relationships with employees. This assistance came in two or three different ways. In the first place, the first line supervisor had formerly met many obstacles in carrying a point "up the line." Things which he thought ought to be done, or complaints from operators which seemed quite justifiable to him had a mysterious way of vanishing without action or of being tabled indefinitely. Now they were being done. The prospect of an issue being taken before top management seemed to have a very stimulating effect in "prying the department or division head into activity."

In the second place, the labor representative often helped the supervisor smooth

out minor irritations or complaints which he had been unable to identify before. Then too, questions affecting the earnings of operators likewise usually affected the earnings of the supervisor who, in consequence, welcomed for the operators the channel which the union made for getting quicker action on these questions.

Supervisor as Forgotten Man

FROM the foregoing explanation, however, it should not be inferred that everything was well with the supervisor—far from it. He did not show much concern about the effects of the union agreement upon his status as a supervisor; but by heated discussion, sometimes by bitter denouncement, and by frequent recurrence to the same theme, he outlined a problem which to him transcended in importance all other problems. So significant did this trend of the discussion seem that a number of representative comments are given here:

"The supervisor is the forgotten man. Everybody gets something but him. Employees get a union agreement; through it a raise and an adjustment on most anything they want. The big shots sit with union delegates and protect their interests. But what do we get? Nothing!"

"We ought to be included in the union."

"Operators can bargain collectively; but we can't."

"We should be on a straight day work basis or weekly roll."

"Present rate adjustment doesn't do us any good. Operators get more money. Output clerks get a raise. Superintendents get a raise. But we don't."

"Cut out the piece work business; put everyone on a day rate basis, and we can do a better job of supervision."

Supervisor in Position of Conflict

FROM these comments it can be seen that the first line supervisor's major problems are only indirectly concerned with the union. He feels that he has borne the brunt of a vicious chain of circumstances beyond his control, and upon which he has no recourse. Almost wistfully he eyes the employee union. If he could but have a similar channel for getting his "stuff to the top." But even more important and of more permanent nature is the conflict in which he finds himself. His sympathies are with the operators; for he understands their problems better than he is permitted to understand those of management.

He is told that he is a part of Management; yet he sees very few indications that he is actually recognized as such. The demand placed upon him for allegiance to a supervisory hierarchy above him (the inner workings of which he is not permitted to see) is in conflict with the working role which as "one of the gang" he must assume. He is obliged to do many things as a representative of management which he has difficulty reconciling with the demands of the employee group with whom his real interests seem more readily identified. He is without recognition, without status, without voice. He is "the forgotten man."

Such, briefly, is the picture which the first line supervisor presents as applicable to himself. It was easily one of the most outstanding trends in the conference discussions. While considerable time could be spent in further amplifying the problem and suggesting possible solutions, it is hardly within the scope or province of this review to do so.

Supervisor and Labor Representative

ANOTHER trend, or cross section of ideas and attitudes, which was discernible in the conferences seems to be in the area of the supervisor and his relationships with the labor representative, or shop committeeman. Usually where the discussion revealed that the supervisor was worrying lest his position be weakened by the union, there was also shown some resentment against the activity and position of the labor representative.

SOME cases were cited to show that the representative was a little too "nosey," that he had let his new job go to his head, that he spent too little time on the job, and that he concerned himself with things which were none of his business. Again it was interesting to note that this expression came largely from the department heads, slightly less from their assistants and foremen, and hardly at all from first line supervisors.

Confusion Due to Newness

THE crux of the problem in this connection seemed to be a confusion attributed to the newness of the union agreement, and the evolutionary phases through which it was passing) as to just what the functions of the shop committeemen were, where their functions ceased and the supervisor's began or vice versa. Occasionally there was strong sentiment to the effect that there ought to be a "rule book" or set of instructions drawn up, carefully prescribing the duties and responsibilities of the labor representative. He ought to be told exactly what kinds of things he could give attention to and under what circumstances they were suitable items for union consideration. This would avoid some confusion both for him as well as the supervisor.

SOME supervisors saw indications that this was being done. But the majority thought this would be an unwise thing to do, and that as more experience was gained with the union much of the present confusion would be outgrown. It would not take the labor representatives long to learn that they were out of line when they presumed to criticize supervisors or asked for a voice in the determination of rate revisions.

THERE was a growing feeling that the agreement might be made to work better if employees had better men representing their interests. The next election would probably show a change in this direction. "Meanwhile," said one or two department heads, "we are going to require a higher grade of supervisor in order to ade-

quately contend with more enlightened labor representatives and the questions they will ask."

There were few indications of any serious problems arising in the relationship of labor representatives and the first line supervisor, although the supervisor would like very much for the shop committeeman to give him a chance to iron out any difficulties within his power before taking the matter to either the foreman or higher up. Outside of some variation in this practice, most discussion along this line, with many cases cited, seemed to indicate that the first line supervisor and the labor representative were cooperating in a mutually helpful and constructive manner.

Summarization of this Report

IT is probably apparent to the reader by this time, as it was to the conference leaders, that a mass of sometimes conflicting and sometimes seemingly pointless discussion was coming out of these meetings. While certain trends were distinguishable, as the report has indicated thus far, it would be difficult to say that any one far outweighed any other. It remains for future discussions to point the way to a clearer analysis of just which one of the problems touched upon in this report will take a predominant position in supervisory thinking. The attempt of this report has been more to explain what was done and said rather than to draw conclusions from or give meanings to what was said. However, in so far as an interpretation can be made at this early stage it would seem that the point mentioned below is worthy of special consideration on the part of management.

The Part that Takes the Kicks

THE supervisors whose troubles stand out in boldest relief are of the first level. They need some help, not in terms of their adjustment to the union agreement (they are not much concerned about that, other than to wish they had one), but in terms of their status in the scheme of things, and of relief from what they regard as an almost intolerable position, caused by the fact that they are supposed to be a responsible part of management, but are in actual fact the part that takes all the kicks.

The Recent Increase of Leisure Time of Workers has Given Management and Labor the Problem of Industrial Recreation. The Material below Gives a Reliable Cross-Section Picture of What Companies are Doing in the Matter.

Survey of Industrial Recreation

By FLOYD R. EASTWOOD AND
LEONARD J. DIEHL

Purdue University
Lafayette, Ind.

THESE are serious times. With trouble popping in half the civilized world, and America treading cautiously along the pavement of good intentions, most of us may be of the opinion that this is no time for play.

And we're absolutely right when we consider play as a substitute for sound thinking, hard work and productive results; but taking the word literally and in its proper place, play has a very important role right now in American life.

America today is striving for national unity. National unity depends in a large measure on industrial unity, and industrial harmony is very much subject to play—that is, planned industrial recreation, wholesome leisure time activity for American workers.

Purdue University Survey

THE facts—and we submit them as such—come to the surface in a survey completed recently at Purdue University in Lafayette, Indiana. The study, entitled, "Industrial Recreation, Its Development and Present Status," brings up-to-date the thinking of alert business leaders in regard to the part planned recreation plays in employer-employee relations.

The results discussed in the Purdue survey were obtained from thirty case studies (personal interviews) and from 609 returns of the 2,486 questionnaires sent out. The questionnaires were returned from companies in 38 states. These companies employed a total of 658,034 employees. Of the 639 returns, 38 per cent of the companies had industrial recreation programs. It was interesting to note that the

percentage of companies having recreation increases as the number of employees increases.

The outstanding values accruing from recreation as listed by the recreational leaders of the companies queried are as follows:

- a. Improvement of employee-employer relations, goodwill.
- b. Better interdepartmental cooperation and fellowship.
- c. Better use of energy during free time.
- d. Means of developing physical and mental fitness.

It was learned that the recreation programs of companies covered in the survey were generally financed either by the company or the company benefit association. Forty-five per cent of the companies spent less than \$2,000 per year on their recreation programs. Two per cent of the companies spent \$40,000 or more per year. Funds allotted to the support of the recreation programs were so slight that the salary of the individual was not likely to be affected. The average weekly recreational cost per employee of all companies having from 6 to 20,000 or more employees was 14 cents. Some of the recreational programs were partially financed by revenue-producing activities, such as dancing and bowling.

Administered by Personnel Men

It was found that most frequently the recreation programs were administered by the company personnel officer and a committee of employees. Seventy-five per cent of the companies administered the program through an individual department. Thirty-three per cent of the recreation supervisors were trained in personnel work, while 22 per cent were college-trained in physical education. There was a conspicuous lack of "name player" leaders; that is, "star athletes."

It is significant, too, that where the recreation program was not under the supervision of part or full-time leaders, the average number of activities offered for the employee per company was less.

A breakdown of the findings on the nature of the recreation programs is interesting enough, perhaps, to bear verbatim repetition here.

Bulletin boards were used more frequently than other methods of informing employees as to future program activities.

Bowling Most Popular

The outstanding physical sports participated in by the men, according to company participation were: bowling (87% of the 245 companies having a recreation program), softball (74%), basketball (54%), golf (40%), and baseball (34%). Football and deck tennis were the two physical sports having the lowest percentage (1%) of company participation.

Thirty-five per cent of those companies having recreation provided bowling for women.

The outstanding activities established on a co-recreational basis were: bowling (74%), golf (67%), and tennis (67%).

Bowling ranked first in the number of companies having family participation, but only 19 per cent of the companies sponsored this type of participation.

Men who engaged in bowling were most frequently (43%) between the ages 18 and 34. Forty-three per cent of the women participants in bowling were between the ages of 20 and 24.

Physical activities sponsored by companies which have all age groups participating are: bowling, golf, ping pong, and rifle or pistol shooting.

The greatest number of teams were reported in bowling. The results show that this sport had as many as 100 teams in a single company. Golf, softball, tennis and ping pong are other physical activities with a large number of teams.

Employee competition in industrial recreation was 69 per cent interdepartmental, while 30 per cent of the employee participants competed in team sports which were between companies.

It is evident that 52 per cent of industrial recreation of a physical type was promoted by the employees. The firm promoted physical activities 33 per cent of the time. Tax-supported and private agencies promoted these activities to a degree of 10 per cent. Union groups promoted physical recreational activities in a few cases (1%).

Cultural Activities

CAMERA clubs, classified as a cultural activity, ranked first in number of companies having this activity. Twelve per cent of the companies provided such clubs for men and seven per cent provided them for women. Six per cent of the companies had camera clubs for mixed groups.

The highest percentages of participants in cultural activities as a whole were between 35 and 39 years of age. The employees promoted 62 per cent of all activities, while the firm sponsored 33 per cent.

Although there were very few other outing activities carried on by industries, picnics were held by 245 (100%) of the companies.

The average age of men and women in outing activities was between 20 and 35 years of age.

The promotional group for outing activities was, in 69 per cent of the cases, the employees. Nevertheless, picnics were sponsored by the firm (67%) slightly more often than by the employees (62%).

Social Activities

DANCING was the outstanding company social activity participated in by all groups.

Participation ages of men and women in social activities varied according to

the activity. For example, the ages of participants in dancing were 25 years and over, while the participants in bingo were 30 and over.

Sixty-eight per cent of the companies having recreational programs reported that the employees promoted the social activities, while 27 per cent of the social events were promoted by the firm. Dancing and social parties were also the outstanding activities promoted by the other listed agencies.

The activities that were most popular during lunch periods were: (in the order of their importance) cards, horseshoes, checkers, softball, musical programs, ping pong and bowling.

Facilities and Equipment

WHILE bowling is the most popular recreation of industrial employees, our study shows that companies seldom provided bowling facilities for the workers. Bowling alleys and golf courses seem to be the outstanding commercial facilities used by industrial personnel. Facilities provided by the company were: baseball fields, softball fields, tennis courts, and billiard provisions. The Y. M. C. A. and the Y. W. C. A. most often provided facilities for basketball and bowling. Softball fields were the most used tax-supported facilities by industrial recreation participants.

It was discovered that the company usually paid for uniforms of a team representing the company, but in the main, the individual employee or the employees' association most frequently purchased game-equipment.

Stated Values of Recreational Activities

IN ANSWER to our query on the "Stated Values of Recreational Activities," we found the greatest percentage of company recreational leaders regarded physical activities as the most popular. Social and out-of-door activities were next in popularity, with cultural activities considered last.

Bowling was listed as the outstanding activity in promoting good fellowship. Other activities that were considered by recreational supervisors as promoters of fellowship were (in order of their importance) softball, basketball, baseball and golf.

Twenty per cent of the companies queried by the survey stated that they had not experienced any labor difficulties. By contrast, however, there were 27 per cent of the companies which had had such trouble. Of the latter, 18 per cent continued their recreational programs during the labor difficulties, while the remainder did not.

Fifty-six per cent of the recreational leaders considered their programs inadequate, while 37 per cent of these supervisors felt their programs were complete. The stated causes for inadequate programs were:

- a. Lack of company facilities and equipment.
- b. Employees living too far from plant.
- c. Lack of diversified recreational program.
- d. Insufficient number of employees.
- e. Lack of good leadership.

More than three quarters (74 per cent to be exact) of the supervisors were of the opinion that industrial recreation establishes a friendly feeling between employer and employee which otherwise might not have been present. In contrast, 4 per cent believed that recreation programs did not improve employer-employee relationships. The remaining 17 per cent were non-committal.

Reviewing our survey findings we can conclude there is a very great need for recreation in an industrial community. In many cities where the industry is the only organization promoting recreation, the company has an obligation to its employees. Human material has to be treated carefully for effective productivity.

Workers Should Direct Programs

WE would make an emphatic point of the fact that best results are secured in industrial recreation when workers themselves have the largest possible share in program participation and direction. Emphasis should be placed on the fact that the promotion and the direction of industrial recreation activities are most important functions connected with employees' service. On the side of management these tasks should be entrusted to men and women of tact, judgment, enthusiasm and sympathy with the aspirations of working people. Paternalism should be eliminated; so should complete company dictation.

Considering the "Values Inherent in Industrial Recreation," we must recognize that if a man has an extra hour or two of rest thrust upon him, and doesn't know what to do with it, he may drink, gamble, go to cheap shows, overeat, quarrel with his wife, or squander his time and money in other profitless ways. All this leads to the conclusion that the problem of recreation and the wise use of leisure time is almost as important as one's work.

Therefore consideration should be given to constructive recreation as a leisure-time activity. Thirty-nine of the recreational directors regarded "better use of energy" as a value which may be obtained from recreation.

Increases Good Fellowship

A SUCCESSFUL recreation program is one which tends to improve the mental and physical well-being of the employees. It should be this without making more demands on an employee's time than he desires to give. Well-planned recreation should develop a camaraderie which will help to break down the sometimes strained formality of business contacts. Teamwork in the field of play should develop team work in the organization.

We contend, also, that a company recreation program may secure the good will of the community at large. This may be accomplished by favorable newspaper publicity concerning the recreation program. Public officers' opinions will be in favor of the company's having wholesome recreation. Public opinion likewise will favor the company's offering recreational activities for the employees of the community.

SURVEY OF INDUSTRIAL RECREATION

In summarizing the Purdue Industrial Recreation Survey, it may be stated that management believes that recreation for the worker and for the employer is conducive to understanding and good fellowship. Such recreation helps to create joy and happiness, and is a very good medium for establishing a better esprit de corps among the various branches of industrial work.

Funds for this study were made available by the Brunswick-Balke-Whitely Company of Chicago, through its educational relations division.

Copies of the full report, of which this is a digest, may be purchased from Purdue University, Lafayette, Ind.

CORRECTION

Inadvertently two tables were misplaced in the last (January, 1941) issue of the Personnel Journal.

1. The table headed "Steps in Doing Job," which appears on page 253, should appear at the end on the section on "Job Descriptions" on page 262.
2. The second part of the table on page 247, starting "Summary of Fire Prevention Items," should appear at the end of the section headed "Fire Prevention" on page 249.

Unions are Relying Increasingly upon the Collection and Analysis of Accurate Data for Their Daily Decisions and the Development of Their Long-term Policies. This Reflects the Fundamental Conviction of the New Unionism that Industrial Relations should be Rationalized.

Labor Union Research Departments

By SOLOMON BARKIN,
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RESEARCH is a necessary tool of contemporary unionism. Effective operation of a modern trade union demands the use of technicians and personnel specially trained in economics, management, engineering, publicity and law to advise its officers and leaders, and also to help in administering unions. A well trained staff is indispensable to the successful use of current trade union techniques and the realization of their goals.

The acceptance and use of these services have epitomized the new trends in unionism represented by the large industrial unions. As the labor movement has adopted more and more of its new characteristics it has accepted these services and made them an integral part of the organization. Union leaders have become aware of their value and have gained an appreciation of their spheres of usefulness.

Demanded by Industrial Workers

THE new unionism stems from the upsurge in organization in 1933 and is being crystallized in the large industrial unions formed since that date. The form, attitude, and aspirations of the new unionism are seeping into most unions, and becoming the common property of the American trade union movement. It is an answer to the demand of the large mass of industrial workers in the basic industries for unions which respond to their practical and pressing needs.

Built to reflect the needs of workers employed in nationally competitive industries, the new unionism has, as we see it, five important traits.

Five Aspects of Present Unionism

FIRST of all, it is required to cope with giant impersonal corporations which control directly or, through, diverse financial channels, many plants distributed throughout the country; these corporations often enjoy monopolistic positions, and employ highly refined management techniques with extensive personnel and welfare programs.

Secondly, the strategy of the new unions is built upon an appeal to all workers, skilled, semi-skilled and unskilled, and therefore the industrial union is its characteristic form of organization.

Thirdly, the newly organized workers recognize that American industry is dynamic and mobile, that new industries and regions arise rapidly to replace older ones, and that therefore American union standards will be best protected by organizing all unorganized workers in every industry and region.

Fourthly, these workers want unions which would couple economic action with extensive national legislation to assure them economic security and protect their unions.

Fifthly, the new unionism believes that unions should assume industrial leadership to prevent competition at the expense of labor and domination of labor by monopolistic industries and in time should secure the right to participate in the direction and planning of industry.

These new characteristics reflect an expansion of purpose and a new militancy which necessitates a specialized staff equipped to assist those handling these many challenges. In the skilled craft unions established for local industries, individual leaders were able to encompass the facts of the industry through their own personal contacts, and deal with the problems in terms of this experience. But the new organizations, too large for such simple procedures, require more precise and more profound, as well as prompter, information, analysis and understanding to cope with their problems. To secure these materials, trade unions have turned to specialized personnel who, because of their training and insight, knowledge of, and allegiance to, the labor movement, could aid in fulfilling these wider needs.

Work of Union Research Departments

THIS paper will deal primarily with the functions of those people who staff that section of the union generally known as the "research department." While their services vary from union to union, they have an inherent generic similarity. The activities of the research department of the Textile Workers Union of America will serve to illustrate the specific content of their services.

Research staffs composed primarily of economists and socially minded engineers, were established to act in an advisory capacity to union officers, but the variety of trade union activities has made it important also to utilize the research

personnel in other capacities. To perform these services, the research staff usually assembles the different types of data which are of direct interest and value both to the unions and membership of the organization.

The first relates to each company's financial, corporate, industrial, personnel and labor experience. The second consists of information on wages, workload and labor costs. The third grouping includes data on the economic characteristics and operations of the industry and its many subdivisions. The fourth outlines the major connections of each member of management. The fifth deals with material about the communities in which the mills are located. Finally, the files consist of reports about employer policies and practices, and collective bargaining experience in other industries.

Economic Surveys Made

THESE factual resources furnish the basis for varied services. Economic surveys are constantly in preparation. There are summaries of economic conditions, measures of business activity, forecasts of future conditions, analyses of different economic and market situations within the respective subdivisions, investigations into financial results of an industry's operations, evaluations of the ability of individual companies and industries to increase wages, and descriptions of sources of economic instability of industrial sectors and the remedies for these conditions. The movement of industry or business from one branch to another or from one region to another or from one plant to another is constantly reviewed.

Interindustry competition requires attention since complaints of narrowing markets frequently foreshadow "cut-throat" competition. Technological changes provoke inquiries into the extent of dislocation, methods of protection, alternative employments and compensation. With defense problems arising, the union must more than ever before be able to identify "ghost" towns, and depressed areas, and locate available labor supply and productivity capacity.

Planning Organizing Campaigns

IN THE following paragraphs, we shall discuss several customary uses of these data. Since the industrial units which are being organized are huge in size and intimately interrelated and since each has its own background in unionism, it is becoming increasingly imperative to plan each organizing campaign carefully and completely. Materials must be available to the organizer for his use. The research departments have made available to organizers in such cases information about the specific community, its population, its mores and its institutions. Insofar as workers in the mill differ from those of the general community, their characteristics are defined. If there had been previous efforts toward unionism, these are traced as are strikes, charges of discrimination and governmental action respect-

ing labor laws. The mills, their financial set-up, personnel and other available data on their operations are reported.

Sometimes Advise Against Organizing

FREQUENTLY, it is necessary to caution against all organizational work because of the weak financial position of the company or because of the imminence of other acts such as moving to other localities. The company's attitude and relation toward unions of course is also stated. In the event that a mill's wages are low, special data are furnished to bring that point home. Information on complaints respecting wages and working conditions, or probable sore-spots are of course given to the organizer. With these materials, the job of organizing is considerably facilitated.

As all industrial relations are being increasingly founded on joint consideration of the relevant facts, unions are more than ever before in need of accurate data and thorough factual preparation to negotiate with management. Its own efforts in this connection must be particularly intensive as management frequently refuses to disclose its data unless compelled to do so by the overwhelming force of the union's case. Unfortunately, labor generally has no access to corporate financial statements or to reports on operations or costs. The existence of such secrecy inspires suspicion and prevents true collective bargaining. The union must now secure its materials from outside sources.

Prepare Analyses of Costs

THE research departments therefore carry the burden of preparing analyses for negotiators on the company's costs, degree of efficiency, financial condition, profitability and prospects. The negotiators must have data on sources for wage increases and adequate analysis of comparative wages, production and costs so that they may be fully guided in the formulation of their demands, deliberations and final settlement. In many instances, it is necessary to define the economic limitations on increases as well as the price adjustments which might be required. The company's economic and market advantages must be assayed. Unions are endeavoring to guide their policies and strategy by the facts of each situation.

Companies financially capable of adopting liberal provisions are frequently reluctant to take the lead. In such instances unions have successfully employed studies of precedents for their proposals. Frequency analyses have been made of agreements to establish the extent of provisions for vacations with pay, for a minimum number of hours of guaranteed pay for reporting to work, or for separation allowances for persons displaced by technological changes, or for the sharing by workers of savings due to increased man-hour productivity. Intensive surveys have been made of specific companies and of entire industries with respect to per-

sonnel practices, labor policies, work load and wage conditions to establish uniform competitive standards.

Controlling Technological Changes

ANOTHER function of the research staff is to develop techniques for handling special problems. In the textile industry, probably the most serious question has been that of workload. The Textile Workers Union of America has faced this problem and has experimentally developed a method of guaranteeing workers effective protection against the onrush of technological change. It has insisted that changes be made only after their submission and approval by the union. Unnecessary and improper changes have been vetoed. Where technical alterations are made, the pace has been controlled. The workers now have job guarantees and higher wages. For those who have been displaced, dismissal wages have been obtained. Other types of provisions have also been developed. Entire techniques have been evolved for combating overwork. Similarly special controls are being formulated for regulating incentive wage systems and employer time-study techniques.

Merit rating systems which are formalizing the many qualifications to straight seniority systems require investigations of personnel practice, and of the work forces to determine the probable effects of suggested modification.

Similarly, labor unions are demanding direct participation in plant safety and health work to prevent anti-union activities and to assure effective protection. They require factual materials for these activities. The research department has aided in formulating the objectives, defining and applying the techniques, and supervising the administration of, and the experience under, these arrangements so that improvements may be made. Advice is given concerning these problems to assure adequate contractual provisions.

Rehabilitation of Plants and Industries

AN EVER expanding field of service performed by unions in which research departments play an important role is the rehabilitation of both individual plants and industries. Industrial unions want to create and maintain sound industries. Without such a condition there can be no security for their members' employment and no opportunities for improving standards or maintaining high earnings and good work conditions. Labor cooperation with individual companies in their managerial procedures is becoming more general as management is learning that such assistance results in greater efficiency and the elimination of much waste.

Specific agreements have been arranged in the textile industry covering this kind of cooperation providing for the protection of the union and for labor to

share in the ultimate savings. The results have been generally favorable to all concerned. The research department is called in to guide local committees as well as furnish them with much of the material necessary for their work. Since such investigations reach into marketing problems, types of manufacture, and surveys of alternative production methods and machinery, many phases of the investigation are carried on completely by the department. This kind of union assistance has, for the most part, been superior to that rendered by outside consulting services since the final changes under union-management cooperation plans are usually effected with greater understanding by the worker. These forms of cooperation have of course not been limited to such formal arrangements or extensive investigations.

Moreover, there are entire branches in the textile industry which require stabilization. Several of these are in the process of study. The classic types of assistance for rehabilitation of entire industries are to be found in the apparel industries. Many of the latter are based on advice furnished by technicians and research men who have studied these industries and rendered their reports for guidance.

Adjustment of Grievances

IN THE actual administration of agreements, the research departments may play an important role. Grievances relating to technical questions which are not settled locally are referred to this department for review. They are frequently able to formulate otherwise vague complaints, identify sources of trouble, review grievance machinery and offer suggestions which facilitate adjustments. Plants with time studies, complicated wage incentive plans, merit rating systems, hazardous and unhealthful employment conditions, wage penalty provisions, substandard wage levels, burden some work loads or excessive rates of change in equipment are constant sources of problems which require the department's aid.

In plants where the union participates in time studies, union representatives have to be trained to supervise and criticize the work effectively. Union wage and negotiating committees must be taught the methods of handling technical issues and critically reviewing management's techniques. These groups need information on comparative conditions and advice on methods of evaluating employer's proposals or measuring units. The training problem becomes a particularly severe one in places where there are complicated wage incentive plans which are enforced by large clerical and professional staffs often exceeding five percent of the total number of employees. A very complete grievance and shop steward system must be established at such mills and each one of these persons must be adequately acquainted with their duties.

Relation to Consulting Engineers

THE employment by textile management of consulting engineers has opened up a new series of issues which research departments are helping to resolve. Unions have found it necessary to deal with these salesmanlike, self-confident and often overpromising persons. Some of them make proposals without thorough study of local conditions and defend their recommendations with mysterious "confidential comparative information," which they refuse to identify or submit to verification or analysis.

The research department has assisted local unions in reviewing the engineers' proposals and in formulating union counter-recommendations. Through a concerted effort in all instances where such engineers are being employed, the research department is attempting to identify these as employer proposals and to make them as much subject to collective bargaining as any other employer request. It is hoped that franker consideration of verifiable facts will facilitate collective bargaining and replace present secretive habits.

Supply Data for Arbitrations

ANOTHER significant field of service has been that rendered during arbitration proceedings. As in all phases of negotiations, management is preparing itself more adequately for all its relations with unions. Most employers who have adequate personnel and engineering departments are usually well supplied with data for such hearings. It is therefore more than ever necessary for unions to present a complete statement of facts and arguments. As arbitrators are as yet most frequently chosen for individual disputes, the presentation must be particularly complete and explicit.

In most instances, arbitrators rely on the data furnished by both parties in dispute rather than on their own independent studies. Research departments are most often required to aid in arbitrations involving questions of wages, working conditions and work assignment. Surveys are made and offered in such instances on economic, financial, price, industrial and similar questions.

Training and Checking Organizers

NO LESS essential is the general duty of the research department to coordinate, systematize and test the policies, procedures and strategies employed by unions. Just as management has organized its personnel practices in the so-called science of personnel management, so the research departments are modestly creating a similar body of knowledge for the trade union movement. Labor organizers and officials have had to operate on the basis of direct experience and word of mouth instruction. Much of the information they secured they have had individually to test for themselves. Research departments are now collecting this experience and preparing manuals, guides and checklists which shorten the preparatory period, assure more

complete instruction and sharpen the insight of labor leaders. Organizers are being instructed in the union's facilities and services of governmental agencies.

The same effort to apply the principles of preparation, research and judgment on the basis of facts is being widely applied to many types of union activities. Conferences of union members or organizers are being directed by well conceived programs. Union practices such as dues collection, grievance machinery, and administrative forces are now repeatedly investigated to assure the officers that they are efficient and realistic. Union policies are being subjected to similar scrutiny. Solutions for such important problems as wage stabilization are investigated prior to their final formulation. Studies in the experience of other unions precede actual recommendations. The American labor movement is trying to achieve its final goals with all of the tools which it can employ, and it is learning to use the tool of research to this end.

Interests Identified with National Welfare

THE trade union movement is fast becoming the most important progressive force in our nation. Its interests are not provincial; they are identical with the nation's welfare. The attitude of mind of the labor leader focuses his attention upon public welfare and general industrial and economic problems rather than upon the narrow interests of an individual concern. They, therefore, are familiar with industry's problems and those of the country. These, they have realized, must be dealt with to improve the workers' lot. As an example, we may refer to unions' efforts to stabilize constructively the more competitive industries through voluntary industrial controls intended to uproot infested areas. In developing policy and programs in these fields, union leaders have looked to the research departments for much of the basic data. They keep apprized of trends and developments as well as all possible sources of trouble.

Legislative Action

LEGISLATIVE action is becoming an expanding part of the trade unions' constructive program. They realize that the government's compulsory powers are necessary to remedy and to improve labor's economic position. The American trade union movement was in the vanguard for wage and hour, social security, public works, relief, housing and labor relations laws. Even more than in the formulation of these original demands, the research staffs are playing their part in following the administration of these laws and reviewing and formulating necessary amendments. In connection with the wage and hour law, appearances are made before industry committees to argue the merits of union wage proposals and before the administrator to recommend specific limitations on learners or other definitions. Exemptions and complaints of violation are also part of the work of such departments. Social security experience is a constant concern since these staffs handle

many problems and must answer many queries. The progress and effect of National Labor Relations Board decisions are being recorded, studied and appraised.

Contacting Government Agencies

AN important function of the research department which frequently far transcends in importance the above specific duties is that of reviewing the activities and keeping in close touch with all governmental agencies whether local, state or federal, which are administering labor laws or collecting data bearing on labor so that the union's views and reactions may be fully known and appreciated. Aid and advice is given governmental agencies making investigations in unionized industries. Studies are examined and reviewed; techniques are carefully scrutinized; subjects for inquiry are proposed.

With these resources for information, it becomes the duty of the research staffs to keep the union's membership informed of progress in various fields. For this purpose, regular monthly and semi-monthly publications are issued dealing with industrial conditions, labor developments and union events. Special reports and publications are issued from time to time.

Public Relations Work

EFFORTS are also made to acquaint other groups in the community with labor's purposes, policies and activities. Trade union research staffs have stimulated many students and scholars to investigate specific fields of labor conditions and union activity. Inquiries of all kinds from government and public agencies, as well as individuals, are constantly answered. Unions want general understanding and appreciation for their work for it is dedicated to the welfare of the great mass of Americans.

A trade union research department is engaged in the vast variety of activities which occupy the modern trade union. Its purpose is not to make decisions on policy or strategy but rather to offer a tested body of facts and information, and studied counsel. Its value is growing as the activities of trade unions are extending themselves into more complicated and larger national industries; are concerned with more fundamental managerial, financial and industrial problems; as the experience with, and knowledge of, collective bargaining is widening; as formal arbitration machinery for the resolution of differences is multiplying; and as contacts with governmental agencies and the public are increasing.

Fact Finding Agencies

UNIONS are relying increasingly upon the collection and analysis of accurate data for their daily decisions and the development of their long-term policies. The ready recognition of the importance of facts by the new unionism reflects its funda-

mental conviction that industrial relations should be rationalized. The problems of management and labor should be resolved by joint study of the relevant facts involved in each dispute.

The stability of industries in which collective bargaining has become an established fact reflects this effort to rationalize industrial relations. The research departments of modern trade unions are aiding unions in finding the facts, in formulating and documenting their statements, in developing and reviewing their policies and practices, in increasing their effectiveness in dealing with many current economic, industrial and managerial problems, and in establishing more rational industrial relations and more effective administration of labor contracts and labor law.

If Companies are to Avoid being Badly Pinched in the On-coming Skilled Labor Supply Limited Market it Would be a Good Plan for them to Start as Early as Possible Estimating Their Future Requirements, and Making Arrangements to See that they Will Have All the Men They Need

Estimating Skilled Labor Requirements

A COMPANY REPORT

THE National Defense Commission recommends that, as soon as companies can do so, they should estimate the number of workers of different grades of skill they will require with expansion of business. There is given below the attempt of one company to do so.

The advantages of making such estimates, particularly in regard to the higher grades of skill are: they enable a company to determine the amount of training necessary, and the possible supply of skilled workers that may be obtained without going to the outside labor market, or doing so only to a limited extent; they enable the employment department to develop a balanced program of recruiting, and to develop contacts with local hiring possibilities and vocational schools; they enable the personnel department to, possibly temporarily, adjust hiring and retiring ages in the emergency; where it appears likely, from such an estimate, that it will be impossible to obtain sufficient skilled labor to meet delivery schedules, the production department may plan modifications of its normal manufacturing methods, or possibly farm out to other local industries some parts of the job.

Factors Taken into Account

THE exhibit below indicates the factors which must be taken into account in estimating labor requirements, and the bases upon which estimates may be made.

It will be seen that the estimate of the personnel department, based essentially upon past trends of the ratio of skilled workers to direct production employees is 8.7%, is twice that of the tool and machine division.

The latter division bases its estimates upon expectations of new tools and machines that will have to be built, and the repairing of tools. It admits that its estimates are too low in that machine overhauling will be necessary, and that the number of laid off employees that may be expected to answer a rehire call, as given, is too high.

There follows the factors taken into account by the personnel department, and tables prepared by them showing their resultant estimates, in comparison with those of the tool and machine division. After these are shown an explanation by the tool and machine division, and tables upon which they base their estimates.

PERSONNEL DEPARTMENT—METHOD OF ARRIVING AT FIGURES USED FOR ESTIMATING
NUMBER OF TRAINEES NEEDED 1939-1943

Occupations included in estimating tool and machine trainees:

Boring Mill Operator	Machinist
Diemaker	Milling Machine Operator
Gagemaker	Planner Operator
Grinding Machine Operator	Tool Inspector
Jig Borer	Toolmaker
Lapidary	Vernier Operator
Lathe Operator	

Three plant trades, electricians, millwrights, and pipefitters included; each estimated separately.

Supervisors of the above trades are included in the totals.

I. PENSION LOSSES, 1939-1943
(46 Tool and Machine; 25 Plant)

Counted the number of employees in the above occupations likely to be Pensioned and it seems reasonable to assume that 46 and 25 will approximate the number of pensions granted during the coming 5 year period.

2. ESTIMATED NUMBER OF DEATHS, 1939-1943
(52 Tool and Machine; 12 Maintenance)

Tool and Machine. The figure for our April estimate (45) was increased to allow for the larger force.

Maintenance. These figures obtained by applying the estimates from the insurance mortality tables of expected deaths during a 5 year period at the various ages to the number on roll at these ages. The number to be added to the force is too small to change the mortality figures.

3. ESTIMATED NUMBER TO BE TRANSFERRED

Out of *Occupations* (43 Tool and Machine; 21 Maintenance) and to Leave Voluntarily (61 Tool and Machine; 0 Maintenance).

Tool and Machine. The number transferred out of the division and left company voluntarily during last 2 years was taken from the inactive "Record of Employees" cards. The figures were placed on a percentage basis and applied to the estimated number on roll 1939-43.

Maintenance. Names of employees transferred during 1936 and 1937 were furnished by employment department. The figures were then placed on a percentage basis and applied to the estimated number on roll 1938-43. No electricians, millwrights or pipefitters left voluntarily during this period.

4. ADDITIONAL EMPLOYEES NEEDED

Due to Expected Increase in Activity (263 Tool and Machine; 15 Maintenance)

Tool and Machine. A ratio of 87.2 tool and machine mechanics employed per 1,000 direct employees in the plant was used to arrive at the estimate of 907 for the 1938-1943 period. There are at present 645 on the roll which includes all occupations listed on the first page of Appendix B. The difference between 907 and 645 gives 262, the number of additional-mechanics needed.

TABLE I
AGE DISTRIBUTION OF GAINFULLY OCCUPIED MALE WORKERS BETWEEN AGES OF 18 AND 64 YEARS, INCLUSIVE
TOOL AND MACHINE MECHANICS

1940 CENSUS OF POPULATION			
Age Group	Estimated number of Tool and Machine Mechanics and millwrights and pipefitters in U.S.	Col. (2) Adjusted to 1939	Total Gainfully Occupied in Our Area
18-19	1	1	1
20-24	1	1	1
25-29	1	1	1
30-34	1	1	1
35-39	1	1	1
40-44	1	1	1
45-49	1	1	1
50-54	1	1	1
55-59	1	1	1
60-64	1	1	1
65-69	1	1	1
70-74	1	1	1
75-79	1	1	1
80-84	1	1	1
85-89	1	1	1
90-94	1	1	1
95-99	1	1	1
100-104	1	1	1
105-109	1	1	1
110-114	1	1	1
115-119	1	1	1
120-124	1	1	1
125-129	1	1	1
130-134	1	1	1
135-139	1	1	1
140-144	1	1	1
145-149	1	1	1
150-154	1	1	1
155-159	1	1	1
160-164	1	1	1
165-169	1	1	1
170-174	1	1	1
175-179	1	1	1
180-184	1	1	1
185-189	1	1	1
190-194	1	1	1
195-199	1	1	1
200-204	1	1	1
205-209	1	1	1
210-214	1	1	1
215-219	1	1	1
220-224	1	1	1
225-229	1	1	1
230-234	1	1	1
235-239	1	1	1
240-244	1	1	1
245-249	1	1	1
250-254	1	1	1
255-259	1	1	1
260-264	1	1	1
265-269	1	1	1
270-274	1	1	1
275-279	1	1	1
280-284	1	1	1
285-289	1	1	1
290-294	1	1	1
295-299	1	1	1
300-304	1	1	1
305-309	1	1	1
310-314	1	1	1
315-319	1	1	1
320-324	1	1	1
325-329	1	1	1
330-334	1	1	1
335-339	1	1	1
340-344	1	1	1
345-349	1	1	1
350-354	1	1	1
355-359	1	1	1
360-364	1	1	1
365-369	1	1	1
370-374	1	1	1
375-379	1	1	1
380-384	1	1	1
385-389	1	1	1
390-394	1	1	1
395-399	1	1	1
400-404	1	1	1
405-409	1	1	1
410-414	1	1	1
415-419	1	1	1
420-424	1	1	1
425-429	1	1	1
430-434	1	1	1
435-439	1	1	1
440-444	1	1	1
445-449	1	1	1
450-454	1	1	1
455-459	1	1	1
460-464	1	1	1
465-469	1	1	1
470-474	1	1	1
475-479	1	1	1
480-484	1	1	1
485-489	1	1	1
490-494	1	1	1
495-499	1	1	1
500-504	1	1	1
505-509	1	1	1
510-514	1	1	1
515-519	1	1	1
520-524	1	1	1
525-529	1	1	1
530-534	1	1	1
535-539	1	1	1
540-544	1	1	1
545-549	1	1	1
550-554	1	1	1
555-559	1	1	1
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1780-1784			

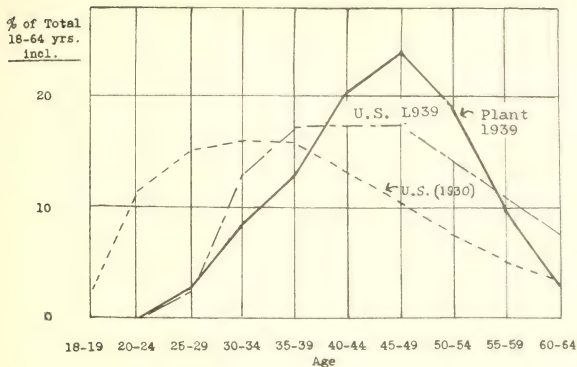


TABLE II

ESTIMATED NUMBER OF TRAINEES NEEDED TO SUPPLY THE EXPECTED DEMAND FOR TOOL AND MACHINE MECHANICS IN YEARS 1939 TO 1943

(Based on 10,000 Direct Plant Employees)

	Personnel Dept.	Tool Machine Dept.
<i>Estimate of Number of Expected Vacancies to be Filled 1939-1943</i>		
To replace Pensioned employees.....	46	
Deaths (actuarial figures).....	52	
Transfers out of division (based on 1936-37).....	43	
Voluntarily leaving Company (based on 1936-37).....	61	
Total expected to leave and necessary to replace.....	202	202
Additional employees needed based on normal load (10,000 employees).....	262	116
Total expected vacancies to be filled.....	464	318
<i>Estimated Number of Laid Off or Downgraded Mechanics to be Recalled</i>		
Total number of mechanics laid off in past 2 yrs.....	302	
Estimated number expected to be rehired based on 8 years experience 45%.....	136	136*
Total number of downgraded mechanics available on roll.....	26	26
Estimated number to be recalled.....	162	162
<i>Estimated Number of Trainees Needed</i>		
The number of graduates needed after estimated number of mechanics to be recalled is subtracted (464 - 162).....	302	156
In order to assure 302 graduates, an estimated 50% more trainees than graduates must be started on the course. Addition estimated at.....	15	8
Total number of trainees needed to assure sufficient graduates to meet 1938-1943 requirements.....	317	164
Number of tool and machine trainees on course at present (August, 1938).....	48	
Additional trainees necessary to start course within next two years in order to be available within next five years.....	269	

* Considered to be high for next hiring period.

TABLE III

TRAINED NUMBERS, TRAINING NEEDS, AND SURVEY OF EXPECTED DEMAND FOR ELECTRICIANS, MILLWRIGHTS, AND PIPEFITTERS BETWEEN THE YEARS 1933 AND 1937

Based on 1933 Direct Employees

	<i>Electricians</i>	<i>Millwrights</i>	<i>Pipefitters</i>
<i>Estimated Number of Expected Vacancies to be Filled 1933-1937</i>			
Quitting Jobs	14	9	3
Deaths (estimated figures)	3	4	3
Transferred out of organization (based on 2 years experience)	3	9	9
Voluntarily leaving Company (based on last 2 years)	0	0	0
Tradesmen retired to home and necessary to replace	22	19	17
Additional employees needed (based on expected increase in activity)	6	4	5
Total expected vacancies to be filled	28	23	22

Estimated Number of Laid Off or Downgraded Tradesmen to be Rehired

Total number of tradesmen laid off	8	7	11
Estimated number laid off expected to be rehired	1	1	2
Total number of downgraded tradesmen available on roll	4	2	0
Estimated number to be recalled	5	3	2

Estimated Number of Trainees Needed

The number of graduates needed after estimated number of tradesmen to be rehired is subtracted	23	20	20
In order to assure the required number of graduates, an estimated 50% more trainees than graduates must be started on the course. Addition estimated as:	1	1	1
Total number of trainees needed to assure sufficient graduates to meet 1938 entry requirements	24	21	21
Number of trainees on course at present	27	24	6
Additional trainees necessary to start course within next two years in order to be available within next five years	3	3	15
Expected number of tradesmen, including supervisors, on roll 1938-1943	106	70	52

2. ESTIMATED NUMBER OF LAID OFF EMPLOYEES TO BE REHIRED

136 Tool and Machine; 4 Maintenance.

Tool and Machine. 302 mechanics were laid off in the present depression. Approximately 45% of tool and machine mechanics laid off between 1929 and 1933 were rehired during the subsequent hiring period. Applying this percentage to the estimate of 302 tool and machine mechanics laid off gives 136 as the estimated number to be rehired.

Maintenance. A very small number of laid off electricians, millwrights, and pipefitters were rehired during the last hiring period. 15% is somewhat higher than the probable figure based on an actual count of total number laid off. Since the numbers involved are small, time was saved by using such figures as were available.

The turnover and on-roll data on tool and machine trainees was furnished by the training department. The turnover per cent among trainees is based on actual turnover figures, 1936 to date.

Estimate by Tool and Machine Division

THE foregoing study was referred to Mr. X for his analysis and comments. It is Mr. X's opinion that we have just passed through a period of activity in the tool room somewhat higher than normal, inasmuch as during the past two years they have completed the tooling for three new products and are well along with the tooling for another new product. He states that they have noticed a rather definite peak in tool building, which follows a ten-year cycle, and have in his opinion just passed the peak in one of these cycles. He feels it will be some time before we will experience another program of such size, and that \$750,000 in tool building is about as much as we can expect on an average, with a normal activity level of 10,000 plant employees.

It was pointed out that there is no definite trend in new machine building, the work being largely dependent on cost improvement studies, changes in methods, etc., and that there seemed to be no definite tie-up between new machine building and shop activity. Although there seems to be little or no machine building activity in the picture for the near future, it is his opinion that it is only a question of time before there will be a large volume of work on machine overhauling, especially if there is any appreciable increase in activity.

Taking all these factors into consideration, he furnished the following estimate of the number of operatives required, assuming for the purpose of estimating maintenance work, etc., that we reach a program level sufficient to require 10,000 plant employees:

TABLE IV

	<i>Number Operatives</i>
Tool Repairs	208
Mechainery Repairs	212
New Tool Building	213
New Machine Building	60
Supervisors	75
Total	768
Less Operatives on Roll as of 10-3-39	644
Total net increase	116
Total expected to leave and necessary to replace (See foregoing study)	202
Total expected vacancies to be filled	318
Estimated number of downgraded and laid off employees to be recalled (See foregoing study)	162
Estimated number of trainee graduates required	156
Estimate of additional trainees necessary to start course in order to graduate 156	8
Total trainees necessary to start course	164

With reference to our estimate of 135 to be rehired from 302 laid off, Mr. X is skeptical of our being able to rehire that many.

TABLE A
 LITERATURE/FUTURE ACTIVITY AND TOOL MAKING PROGRAM

Year	Literature Program*	Future activity Program**	Research Program***	Education Program	Research Program	Research AND DEVELOPMENT Program	Tool Making Program			
		A	B	C	D	E	F (Tool and Die Making)	G Machine Horse	H Manufacture	I Total
				A + B		(C + D)				(F + G + H)
1953	31, 13, 13, 1000	300, 1000	130, 1000	0, 1000, 1000	500, 1000	0, 1000, 1000	100	130	130	360
1954	20, 50, 10, 1000	0, 1000	130, 1000	0, 1000, 1000	500, 1000	0, 1000, 1000	100	130	250	950
1955	13, 10, 10, 1000	0, 1000	1000, 1000	0, 1000, 1000	500, 1000	0, 1000, 1000	100	130	100	330
1956	10, 10, 10, 1000	0, 1000	1000, 1000	0, 1000, 1000	500, 1000	2, 125, 000	100	130	130	900
1957	10, 10, 10, 1000	0, 1000	1000, 1000	0, 1000, 1000	500, 1000	0, 1000, 1000	100	130	130	360

* Future Sales Organization.

** Future Tool Development (by year 1) - given in total which has total program and development costs.

*** Future Manufacturing Organization.

†† Figures are in (1000) dollars.

Many Companies have Difficulty in Explaining
Their Policies to New and Present Employees,
other than in Dull Stodgy Language Accom-
panied by Statistics. Here is a Simple Way of
Doing This Job Suitable for House Organs.

An Hour *with Joe*

The Story of Joseph Deaner

SKF Industries, Philadelphia, Pa.

BIG Joe Deaner, boss of the salvage department of SKF Industries, Inc., manufacturers of ball and roller bearings of Philadelphia, Pa., recently entered his department with a broad grin.

One of the officials had just told him, "Because you're between 30 and 65 years old and have been affiliated with the company for more than five years, Joe, you can participate in an Equitable Annuity-Compensation Plan we're sponsoring."

That meant a tidy income, in addition to Social Security payments, when he becomes 65 years old. Joe liked the idea, so now he contributes 2½% of his earnings, the company investing a similar amount in addition to paying all back premiums.

Security through the Company

AND this," he was told, "is in addition to the Equitable Group Insurance set-up we adopted several years ago." But Joe doesn't worry about premiums on this insurance. He went fifty-fifty with the company until they gave him a gold watch with his name engraved on the cover and assumed responsibility for all insurance premium payments. That was when he had completed 20 years of service.

At 55, Joe is the oldest factory employee in SKF in years of service. He's been with the Company since March, 1909, when Mr. William Batt, now president of the Company and member of the National Defense Advisory Commission, worked in overalls as a struggling engineer and Mr. Robert Runge, vice-president and oldest SKF employee, was a draftsman.

How It Has Grown

HE HAS seen the Company leap from a small office on North Broad Street employing six people to seven modern streamlined plants at Front Street and Erie Avenue and at Bridge Street having 666,600 square feet of manufacturing floor space and manufacturing 700,000 pieces while daily production rose from 35 to more than 43,000.



"JOE STANDS UP TO HIS JOB"

He has seen many a romance blossom around the machines as male operators married their pretty helpers, and has witnessed many a tragedy before modern safeguards were introduced to insure safety.

He poked a big paw into a pocket and pulled out a stubby pencil with which he began figuring the amount the company would pay on his back annuity premiums, and a startled whistle left his lips. The figure ran into four digits; and there are 176 others almost as old in service as he.

There would be plenty of table-talk tonight, he reflected, when he broke the news to his wife and his daughter, Janice, 17, at dinner in their cozy little home at 1149 North 8th Street.

He glanced at the clock on his desk, and turned back toward the door. It was near lunch time, and he was hungry.

Bearings for Guns

HE PASSED through the packing room, and saw the factory with new eyes. Before him stretched wide, well-kept aisles. Overhead fluorescent lights sprayed soft beams, and air vents emitted conditioned air. He glanced quickly at a big spherical roller bearing on its way to a gun manufacturer, and shrugged his shoulders. He had confidence in the future.

"Hey, Joe, I want to see you a minute!" somebody shouted as he opened the door into the main factory.

Joe looked toward the candy, tobacco and soft-drink store maintained before working hours and during the lunch period by the Beneficial Association. Bill wanted him to see Al about joining the Credit Union that issues loans to employees at a low rate of interest, regulated by The State Banking Commission.

Complete Program for Workers

THEY didn't have such things when Joe first came to work for SKF. No Annuity, Credit Union, Beneficial Association, Hospitalization. No Chorus nor Orchestra. No Tuna Fishing Club. No open house picnics such as held by 5000 employees and their families on the lawns of Plant 1 in the summer of 1940. No cup-winning Baseball, Basketball, Bowling, Table Tennis and Golf teams. No foreman's training schools sponsored by Penn State College. No classes from 6:30 to 9:30 p.m. Monday through Thursday in industrial management, engineering, planning and production control, time study, methods, etc., in a government-sponsored program under the auspices of the University of Pennsylvania.

He said he'd find Al, and started for the washroom. As he passed the bulletin board, he saw a "safety first" sign, and recalled that the Department of Labor and Industry had awarded SKF the Pennsylvania Safety Award for the least number of accidents last year.

The machines, he noticed, had special guards to protect eyes, hands, and feet from being crippled, and thought that the Company makes working conditions as pleasant and as safe as humanly possible.

As he entered the washroom, he heard a workman say, "Yep, it's my turn now. Hope the doc doesn't find anything wrong with me."

Helpful Medical Services

Joe knew that meant the speaker was reporting for a physical examination including X-ray photographs—required of every employee since September 5, 1939. He knew, too, that if anything was wrong, attempts would be made to correct any incipient disease, and at the same time prevent the spread of infections and contagious ailments among other employees. The service is an adjunct to the employee's personal physician.

Washing his hands in hot water that flowed into the modern circular tubs which are large enough to accommodate a dozen men, Joe looked over the sea of green lockers for Al. He wasn't there. But as he dried his hands with a paper towel from one of many containers, he heard water swishing in the adjoining room. He stepped inside, and found his man under one of the stall showers.

His watch told him it was getting late, so Joe hurried out the door, across the grinding and hardening rooms and up the stairs. Soon he was in the modern cafeteria where a chorus of chatting voices made more noise than a battery of automatic lathes. Someone pointed out the window, across the landscaped lawn with its border of shrubs and flowers to where a stream-lined train was streaking by.

Joe resumed his position at the rack, and while waiting his turn for service, glanced at the happy, noisy crowd about him.

Book Reviews

RETAIL PERSONNEL RELATIONS

By O. PRESTON ROBINSON. New York: Prentice-Hall, Inc., 1940, 563 pp.: \$4.00

Reviewed by DONALD K. BECKLEY

The very nature of the business of retailing makes it particularly dependent for its success upon the human element. In general, retail stores have been slow to recognize the importance of employee relations problems. Within the last few years, however, substantial strides have been made by many retail executives toward a more complete understanding of the significant elements in the employer-employee relationship. *Retail Personnel Relations*, by O. Preston Robinson, should serve the two-fold purpose of providing a relatively complete and very useful text for students in this field, and at the same time consolidating for the store executive detailed information regarding current retail personnel principles and practices.

Several books, and many articles and studies of various types have been written on different aspects of retail personnel management during recent years, but this book by Dr. Robinson is the first to cover thoroughly the entire field. In so doing, its author has made a very significant contribution to personnel literature.

Personnel policies, the organization and allocation of personnel duties, job analysis, sources of labor supply, employee interviewing and testing, wage payment plans, the personnel budget, and training for various purposes are all covered in detail. Several chapters on problems in and methods of employee stabilization are especially timely, and material on employee participation through employee activities and profit sharing plans will serve a definite need in the retail field. Unionization, which has become such a serious problem especially in some sections, is competently covered in the chapters on collective bargaining and legislation affecting labor problems in retailing. An appendix contains an abstract of the New York State Labor Law relating to mercantile establishments, which should prove useful for reference purposes.

The author of this book is a member of the faculty of the New York University School of Retailing, and through his teaching and research experience, and contacts with department stores all over the country, is well qualified in this field.

Reviewed by MARY KEARNEY

There has been a definite need for a practical, up-to-date volume covering the subject of personnel relations in retailing. Dr. Robinson's new book fills that need with a concrete, thorough study of modern employer-employee relationships in department stores.

No abstract theorist, Dr. Robinson has stayed with actual facts gleaned from the present-day operations of progressive stores, mostly the larger institutions of the New York area. His detailed explanations of systems and procedures are in valuable guides for any personnel manager interested in installing a new method, or improving an old one. Examples of actual forms and tables are sprinkled generously throughout.

However, the book is not dominated by statistics, for the author never loses sight of the human element in personnel work. His exposition is unbiased, objective; yet the reader gains a feeling of what "ideal" personnel relations should be, and is presented with a variety of practical ideas to be used toward attaining that ideal.

Though its scope is broad enough to cover the operation of large metropolitan department stores, "Retail Personnel Relations" still has a great deal to offer the management of moderate-sized establishments, for most of the suggestions may be simplified and adapted to the needs of the smaller merchant.

In addition to a complete study of the more conventional activities of modern personnel departments, Dr. Robinson devotes his last two chapters to a summary and explanation of collective bargaining and of recent labor legislation affecting retail businesses. These latter chapters are a real contribution to retail labor relations—a delicate subject for the merchandiser who has all too long confined himself solely with buying, selling and store services.

Retail Personnel Relations is a sound, authoritative presentation of successful personnel methods as used in the nation's outstanding retail concerns.

III. RETAIL PERSONNEL PRIMER

National Retail Dry Goods Association. New York, 1940. 165 pp. \$2.50
(10 to members. \$1.00)

Reviewed by MARY KEARSEY

The Retail Personnel Primer presents an excellent compilation and condensation of the functions essential to proper retail personnel administration. It is self styled as "informative, coherent, constructive and academic." Simplicity is the dominant tone throughout, and the "complicated jargon of the personnel specialist" is studiously avoided.

This book was published under the auspices of the Bureau of Smaller Stores, and was prepared particularly for that type of retail outlet. It can be used to advantage both by the busy director of an established personnel division, as a check list for a periodic review of the adequacy of the departmental operation, and by the neophyte in retail personnel work, as a guide book to assist him in establishing, even on a small scale, the facilities necessary to the performance of basic personnel activities. In this latter group might also be placed those executives in smaller stores whose entire time is devoted to personnel operation.

The scope of the work is most adequately portrayed by an outline of its subject headings; The Importance of an Established Employment Policy; Good Will Factor in the Employment Process; Employment Procedure; Types of Training; Training Procedure; Hours; Absences; Wages; Wage Payment Methods; Maintenance of Records; Personnel Inventory; Changes in Employee Status; Health Services; Vacation; Benefit and Insurance Plans; Employee Shopping; Borrowing by Employees; Education and Recreation; Employee Representation Plans; and Customer Relations.

The presentation is thoroughly practical in every respect. For example, if the reader is interested in obtaining samples of house organs, information on contests used in other stores, free training films, and pamphlets on consumer education, he is told not only to whom he may write, but the actual city and street addresses are given. Again, he is not presented with a theoretical analysis of the elements of a corrective interview; he is shown in 1-2-3 fashion the steps that should be followed in conducting such an interview.

The Retail Personnel Primer is an analysis prepared by retailers for retailers and is recommended to all persons concerned with the human factor in the operation of a smaller store.

SIX WAYS TO GET A JOB

By PAUL W. BOYNTON. New York: Harper Bros., 1940, 147 pp.: \$1.50

Reviewed by Book Review Editor

It may be common to hear a personnel man say he is going to write a book; but less frequently do we ever find one doing it. Here we have a prominent personnel manager who has precipitated his twenty years of experience in this timely book on job-finding.

Coming at a time when employment seems more encouraging and hence less dependent upon such media, the work is nevertheless a substantial contribution to the popular-vein of books in this field, and is especially recommended to the young man and woman who find it difficult to locate their places in the wartime scramble for jobs.

The author presents job-finding as a six-sided sales campaign which any intelligent person can direct. The six parts, with suggestions for their application, are (1) Placement bureaus in schools and colleges, (2) Friends and relatives, (3) Commercial agencies, (4) Personal solicitation, (5) Letters of application and (6) Commercial advertising.

The employed person looking for a better job might also find this volume very helpful. In fact I have found it a convenient guide to hand out to deserving applicants whom busy employment and personnel executives would like to help but with whom they have not the time to spend in lengthy counsel.

If you, too, have been going to write that long-delayed book on this subject—maybe you had better read Boynton first.

THE MANAGEMENT OF MUNICIPAL PUBLIC WORKS

By DONALD C. STONE Chicago Public Administration Service, 1939, 344 PP.

Reviewed by LEMER C. ROWLEY

For the public personnel administrator this book is a summary of the principles and main practices used in the public personnel office. For the general city administrator the work is a brief but complete outline of public administration. It should be of particular interest to the technical and engineering administrators, such as the street, building, health and sanitation departments.

A complete section is devoted to public personnel with special attention to the application of personnel practices and procedures in the Department of Public Works. The author places much emphasis on the principles of good business organization—the foundation on which personnel administration must be built. Departments of Public Works serve the author as good cases in point. For instance, the central personnel department is essentially a staff agency and should serve all the operating or "line" departments which logically form a part of the central administrative office. This relationship is contrasted with the older thought which pictured the personnel department as an organization separate and distinct from the central administrative office, as are the civil service commissions in many cities which early adopted formal civil service. The personnel director is described as one who should serve the department head. Instead of usurping some of the authority of the department head, the personnel director is endeavoring to recruit more competent employees, improve morale, eliminate friction, handle or assist in adjusting grievances and otherwise improve the effectiveness of municipal manpower.

Illustrative of the relationship which Stone states should exist between the personnel agency and the operating department is his discussion of the establishment of departmental rules. He believes that when not in conflict with general personnel rules which apply to all municipal departments alike, and preferably when approved by the personnel agency, the public works director should issue administrative orders and regulations covering departmental personnel matters.

The book's greatest value will probably not be in its usefulness as a reference but in the correct procedure which it gives to the reader of the responsibilities and relationships of the personnel agency to the operating departments. Of even wider interests are the discussions of the standards and measurements of municipal administration and the analysis of adequate and balanced public relations.

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Promotion to a Higher Paid Job is Better than a Raise in Pay in the Present Job. Preparation for Promotion Involves Doing the Present Job Better and Showing Signs of Administrative Understanding.

Stimulating Employee Self-Improvement

By EUGENE B. MAPEL

General Motors Steel Corporation
Pittsburgh, Pa.

AN IMPORTANT factor in creating satisfaction in the job itself, and therefore improvement of job performance is the continuing adjustment between the employee and his job. None of us can be satisfied when engaged in an undertaking beyond our skill and knowledge, and without satisfaction, it is difficult to perform the job functions properly. Any technique, which leads to a greater mastery of the job, and hence of job satisfaction, is of benefit to all. In this paper we will consider a technique which has proved of value in our own experience.

Job Knowledge and Job Changes

SOMEONE has said, in essence, although the reference may be disputable, that a substantial percentage of all industrial employees who might be classified as unsatisfactory at one time possessed skill and knowledge sufficient for a given job. In a progressive economy such as ours, however, processes and techniques change, so that the knowledge of today must be adjusted and amplified to meet the condition of tomorrow. Our progress, therefore, has brought about increasing complexities requiring broader knowledge. It becomes the responsibility not only of employees, but of their supervisors, to co-operate so that the adequacy of knowledge of the job may keep pace with the changing requirements of the job.

To anticipate this situation, industry has developed training programs designed to utilize almost every conceivable training medium. Correspondence schools, trade extension classes, visual aids, vestibule schools, conference training and other mediums have all contributed their part toward the development of the workers' ability to meet increasing job requirements. Unfortunately, the use of these aids

has not furnished a completely satisfactory solution to the problem as yet, and the search for new methods and techniques must be continued.

In most industries it is not practical to provide the instruction and equipment necessary to carry out a direct training program for all employees. The essential facilities for training—that is, libraries, trained instructors, classrooms, night classes, correspondence schools, etc.—are already provided by public and private institutions created for that purpose, and those facilities are already available to most workers. Unfortunately, an insufficient number of workers take advantage of them. Therefore, the job instructor who is limited in his own facilities, by necessity or by choice, must resort to techniques which encourage the use of facilities already available, but relatively unused.

Stimulus of Practical Tests

WE BELIEVE, as a result of our experience, that a practical test, properly prepared and carefully presented, is of material aid in stimulating the desire for learning on the part of individuals subjected to it. The test referred to here should not be confused with the more familiar type of test designed for selection of employees or for measurement of knowledge. We have in mind a test designed primarily to convey information to the person who is being tested, and to stimulate him to seek further information under his own initiative.

The testing technique has been used in our own organization for three general purposes. These should be kept in mind in the ensuing consideration of our method and results. The first purpose is to stimulate discussion in conference groups; the second is to stimulate individual effort toward the development of job skills; the third is to stimulate and to direct interest in the actual performance of the job.

Increasing Supervisors' Knowledge

ONE of the most perplexing problems confronting industry during recent years has been the education of the supervisory organization in matters pertaining to company policy, to social legislation, and to the supervisory responsibilities resulting from certain acts of labor legislation. Subjects of this type are usually dealt with in conferences, but it is difficult to obtain a satisfactory conference response when the individuals have a limited knowledge of the subject matter. In some cases the discussion is of such nature that at the conclusion of a two-hour conference the conferees will be more confused than they were at the outset.

As a result of our experience with this difficulty, we have prepared questionnaires which serve to give basic information, to stimulate discussion, to direct the course of the discussion and to show each individual where further study would be most effective. They deal solely with practical problems regarding which supervisors must make decisions or give information in the course of their work. These questionnaires are of the "true and false" or "multiple choice" variety, since these

types are found to be most easily constructed and understood. The questionnaire is presented to each supervisor present at the beginning of a conference.

After the members have filled in their answers, the conference leader goes through the list of questions, discussing with the group the correct answer to each question and the underlying reasons for it. At the conclusion of the meeting the foreman or supervisor retains his copy of the questionnaire with the correct answers marked upon it, and this is to be used for his reference or further individual study. No attempt is made to score the papers, nor is there any gesture which might embarrass the individuals who have listed incorrect answers.

The questionnaire has been found to have a marked effect on the discussion in conference groups. When a supervisor answers the questions, as best he can, before the discussion begins, he enters the actual discussion with an interest which is difficult to arouse in any other manner. He is interested to find out the correctness of his own answer, and what the other supervisors think.

Labor Legislation Questions

The following is a representative question used in a conference on Unemployment Compensation:

In Indiana the limit of benefits which an employee can obtain in one year under the Unemployment Compensation Act is \$325 True, False

When the correct answer is given to the group, individuals may compare it with their own answer, and pertinent questions may be introduced for discussion. This treatment effectively conveys the required information to the conferees. Another type of question along the same line would be:

Under the Fair Labor Standards Act it is permissible for a foreman to allow a man to work longer than forty hours a week after October 24, 1940, if the man does this work on his own time True, False

Invariably, after a question of this type the conference leader has little difficulty in securing a barrage of related questions which are developed by the group and answered with the help of the group discussion.

It should also be mentioned that quite often it is desirable to use a question for which the answer is obvious for the purpose of emphasizing a particular point. Take for example the following question used in a conference on Labor Legislation:

The labor union has no right to interfere at all on the union organizer's question True, False

Questions on Company Policies

A representative question on company policy would be the following, which, it will be noticed is of the multiple choice type:

If an employee reports for work in your department under the influence of a community prohibition

1. Send him to the hospital for observation.
2. Notify the Superintendent or Supervisor of Plant Protection.
3. Ask him where he got the liquor.
4. Wait until he sobers up and then send him home.

Another question of the same type used in a similar conference would be

If an employee is called out for work at 8:00 p.m. because of a vacancy in a position regularly filled by another employee and he works until 12:00 p.m., he should be paid for:

1. 4 hours' work.
2. 5 hours' work.
3. 6 hours' work.
4. 8 hours' work.

Although we believe that in our company we have a well-trained supervisory organization, numerous misconceptions of company policy are righted through the use of this test and discussion technique. This type of question, for example, can also be used to advantage in the discussion of the problems of seniority:

In department "A" there are three shears; John Jones is first helper on No. 1 shear, who due to sickness of the shearman, has acquired two weeks' experience as a shearman. Several months later a vacancy exists in the shearman's position.

First chance at the vacancy should be given to:

1. John Jones.
2. The first helper with the longest departmental service.
3. First helper with the greatest plant service.
4. The first helper with the longest service where combined factors are relatively equal.

Aids Uniformity of Interpretation

IT CAN be readily seen how such questions on company policy, the development of correct answers to them, and the reasons therefor aid materially in obtaining uniformity, through the organization, in the interpretation and administration of rules and agreements.

It should be added that in our experience not more than ten questions if they are properly selected, should be used during a one and one-half hour conference discussion. We have found in our own plants that this type of training—a combination of test and conference—is more effective than a lecture or pure conference. The technique has been used on subjects such as "Unemployment Compensation," "Labor Legislation," "Collective Bargaining" and "Company Policy," and it is a technique which is suitable for any other topic of this type.

Increasing Job Knowledge

ANOTHER place where practical questions and tests have been found to be of great advantage is in the stimulation of tradesmen to increase their job knowledge. Tests have been found to be most useful in training maintenance men—Electricians, Pipefitters and Machinists. These workers have, in many cases, learned their trade

on the job. Their training is limited, therefore, to bare essentials necessary for the day's work, and the men are lacking in the related knowledge which will increase their effectiveness on the present job, and which will be necessary in case of transfer or promotion.

The possibilities of the trade they are in, together with the extent of knowledge necessary for advancement is most easily and effectively conveyed to the men by means of a comprehensive paper examination. It is easy, as an example, for a man who has been working on a lathe for a year or so to fall into the belief that his job is all there is to machine shop work. The test covering the entire field of machine shop practice may, and frequently does, throw a new light on the matter, and may lead the man to take advantage of adult schools, libraries and the counsel of his supervisor.

In the case of trade tests, it has been our practice to score the results and to inform the employee of his relative status among those doing similar work. This information serves as an encouragement in some cases, and as a stimulus for self-improvement in other cases. An incidental value of the test, if it is properly designed, is that it also can be used to help estimate the trade-knowledge of applicants who claim previous experience, and in many cases the test results are worthy of consideration in cases of transfer or promotion. A well constructed test can be made to serve these additional purposes without decreasing its value as a device for stimulating self-training activities.

Pipefitters' Questions

THIS sample from our Pipefitters' Questionnaire shows the type of question that we have found to be most satisfactory:

When connecting a stabilized gas line to a natural gas line, you should
 connect using a: 1. solid connection, 2. swing joint, 3. separator, 4. emer-
 gency low pressure line.

This question was designed to inform, and to stimulate interest. The next sample (Figure I, page 321) shows a different type of question—one designed to impress upon Pipefitters the necessity of knowing the color code.

Machine Shop Questions

THE type of question illustrated (Figure II, page 321) is designed to give the "experienced" or "practical" man some advantage over the man whose knowledge is entirely theoretical. Its purpose is dual—to show that machine jobs can and must be planned, and to find out whether a man is familiar with the shop language.

Electricians' Questions

NEXT is shown a series of questions from the Electricians' Questionnaire (figure III, page 322). These questions are used to demonstrate the symbols which an electrician must know to read blueprints correctly. It has been our experience that

Materials

1. Stabilized Gas
2. Steam
3. Hot Water
4. Cold Water
5. Coke Oven Gas
6. De-oxidized Gas
7. Compressed Air
8. Natural Gas
9. Fuel Oil
10. Sulphuric Acid
11. Farval Grease
12. Bowser Oil
13. Gasoline
14. Kemp Lines
15. Water Fire Lines
16. Foamite
17. Hydraulic Lines

Colors

- Aluminum
- Black
- Brown
- Bright Red
- Cerling Blue
- Dark Purple
- Dark Red
- Grey
- Green
- Blue
- Pink
- Olive green
- Orange
- Lavender
- White
- Yellow

FIGURE I

On the right is a list of colors. On the left is a list of the materials carried in pipes at this mill. You are to show how well you know the color code by matching each color with the figure or figures which you find before the appropriate materials. Mark your choice in the parentheses at the extreme right. The first one is correctly marked to show you how it should be done. There will be some colors unused; some others will be used twice.

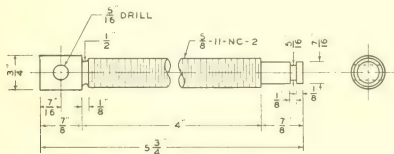


FIGURE II

The following exercises are intended to test your ability to analyze a machine job and arrange the operations in the most logical order. Study the drawings before you start to mark the statements. Indicate your choice of the four operations in each group by placing the letter preceding the operation in the parenthesis on the right hand margin. You may also underline your choice if you wish.

Part I

MAKING A DRILL PRESS VISE SCREW

Made from $\frac{3}{8}$ " RD. bar stock

PART I. CHOICE OF OPERATIONS FOR EACH STEP

1. (a) Face in chuck, (b) face on centers, (c) layout to drill, (d) neck $\frac{1}{2}$ " ()
2. (a) Drill $\frac{1}{16}$ ", (b) face on centers, (c) center drill, (d) turn $\frac{1}{4}$ "
3. (a) Layout to drill, (b) neck $\frac{1}{16}$ ", (c) turn $\frac{1}{4}$ ", (d) turn $\frac{1}{2}$ "
4. (a) Turn $\frac{1}{2}$ ", (b) turn $\frac{1}{16}$ ", (c) drill $\frac{1}{16}$ ", (d) face on centers
5. (a) Neck $\frac{1}{16}$ ", (b) turn $\frac{1}{16}$ ", (c) ream, (d) face on centers
6. (a) Drill $\frac{1}{16}$ ", (b) chamfer, (c) ream, (d) neck $\frac{1}{2}$ "
7. (a) Layout to drill, (b) center drill, (c) turn threads, (d) face in chuck ()
8. (a) Drill $\frac{1}{16}$ ", (b) shoulder, (c) neck $\frac{1}{16}$ ", (d) slot
9. (a) Turn $\frac{1}{2}$ ", (b) chamfer, (d) neck $\frac{1}{16}$ ", (d) face in chuck
10. (a) Layout to drill, (b) ream, (c) neck $\frac{1}{16}$ ", (d) shoulder
11. (a) Cut threads, (b) drill $\frac{1}{16}$ ", (c) face in chuck, (d) shoulder ()

many good electricians of long practice have only a limited knowledge of how systematic a blueprint is, and a question of this type is an effective device for showing



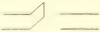

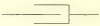

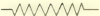

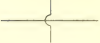
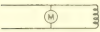
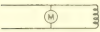

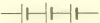
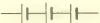
()		(1) ammeter
()		(2) battery, series cells
()		(3) buzzer
()		(4) coil
()		(5) condenser
()		(6) double pole switch
()		(7) lamp outlet
()		(8) resistance
()		(9) shunt motor
()		(10) single pole switch
		(11) transformer
		(12) voltmeter
()		(13) wires crossing
()		(14) series motor

FIGURE III

In the following section of this test a number of symbols which are commonly used to represent various parts of electrical systems are placed in the left-hand column, with parentheses to their left. In the right-hand column are the names of a number of electrical devices, arranged in alphabetical order. Place the number of the name in the parenthesis before the symbol which is used to represent it. There are more names than symbols, so all of the latter will not be used.

What should be known and what can be learned easily with a little self-directed effort on the part of the employee.

The trade tests now in use in our plants have a large number of questions covering their respective fields thoroughly. The questions are graded in difficulty so

that by retesting, a measure of progress in learning can be had. This feature has been particularly useful in connection with the apprentice classes. The tests are presented to employees as a guide to what they ought to know about their trade, and since it is not practical to convey the material directly we thereby stimulate them to learn through other channels. May I mention that an increase of more than 200 per cent has been noted in the enrollment of adult trade classes in the fields where the testing technique was used. This, we believe, is sufficient evidence of the value of testing technique as a stimulus to learning.

Job Performance Tests

A THIRD type of test used as part of the training program is one designed directly to stimulate effective performance on the job. As an illustration of this technique, we will describe a test prepared and used in the Plant Protection Department. In an organization as large as ours it is difficult for a plant watchman to recognize many of the supervisors whom he should know upon sight. To direct attention towards deficiencies in this respect and to help eliminate the deficiencies, a recognition test was prepared.

Photographs of a large number of supervisors were thrown upon a screen and the Plant Protection men were asked to identify the photographs and record the name of the man photographed, his position and the location of his office. A retest some ninety days later showed a great improvement over the scores on the first test, due, no doubt, to the stimulus of the testing technique. The test was surprisingly effective in some cases, for supervisors reported that they had been approached by Plant Protection employees who wished to be informed about their name, position and office location. Incidentally, the men enjoyed taking the test and a noticeable improvement in job interest was in evidence. In this case a simple test proved of great value in stimulating better performance on the job.

Improving Detection of Defects

ONE more illustrative case will suffice to show how the testing technique can be used to improve job performance. This test was devised to improve the performance of the assorting-room girls. These girls inspect the tinplate just before it is shipped to the customer, and since this is the final inspection, the work must be done with great care. These girls must be sufficiently alert to detect all of the many different kinds of defects which may occur in tinplate. Their performance on this difficult job has been of a uniformly high order; however, it was determined that even greater emphasis should be placed on the detection of a certain defect of greater importance and more elusive than the others.

To improve their inspection in this regard the testing technique was brought into use, by the simple expedient of preparing a dummy test stack of selected sheets and asking each girl to assort the stack, paying particular attention to the defect in

question. The girls gave their full co-operation and the device had its intended effect; for there was an immediately noticeable increase of attention given by the girls toward improving their performance in the manner suggested by the test. We believe that this simple test was more effective in helping the assorting-room girls improve their work than any amount of verbal advice or instruction.

In conclusion may we summarize what has been said concerning the test as a stimulus to learning in industry. In the training program at our plant, we have used tests in this manner for over two years. Three general types of tests have been devised, each adapted to a special course—the test to stimulate conference discussion, the test to stimulate the use of outside training facilities; and the test to stimulate increased effectiveness on the job. These tests have demonstrated their value to our satisfaction.

Some of you may be wondering what the workers themselves think of these tests. It has been our experience that very few men object to taking a test, and that most of them approach it with an interest which is most gratifying. Perhaps the prevalence of the radio quiz program has led them to a blind acceptance of all tests, but we prefer to believe that the workers accept the tests in the same spirit as they are offered—an attempt to improve their job performance and their job satisfaction.

This paper was presented at the last meeting of the Texas Personnel Conference, University of Texas.

WANTED

Back Numbers of the *Personnel Journal*.

Libraries and industrial companies have sent in orders for back numbers of the *Personnel Journal* for reference and to complete their files. The following numbers are out of print:

Volume	Number	Month	Year
6	10	April	1928
13	3, 4 and 5	Sept. Oct. & Nov.	1935
17	3	Sept.	1938

We should be obliged if those having copies of these numbers, which they no longer require, would return them to us. Full price will be paid for copies so sent in. They should be addressed to, Circulation Manager, *Personnel Journal*, 60 East 42nd Street, New York, N.Y.

Through the Suitable Application of Psychological Tests, Cases are on Record Showing Reductions in Defects, Decreases in Production Times, Less Labor Turnover, Fewer Accidents, Better Use of School and College Time and More Appropriate Selection of Jobs by Students.

Psychological Tests *in* Industry *and* Education

By L. R. PALMERSTON

South Dakota State School of Mines
Rapid City, S. D.

ALTHOUGH psychological testing is now several decades old, few personnel men or the general public seem to appreciate the significance of the movement, or to understand its advantages and limitations. Too often articles which reach the reader are extremely biased and one-sided, presenting a strong case either for or against the movement. Enthusiastic psychologists and journalists have described the mental test as a cure-all, and have penned such phrases as "uncanny accuracy", "amazing predictions", and "fool-proof formulas." Others have engaged in severe criticism of the whole or parts of testing procedure, protesting against abuses, and exposing faults in technique and flaws in interpretation.

Science Is Young

THE mental testers themselves have been amused and at times a bit alarmed at the one-sided comment concerning their efforts, but in general they have welcomed discussion of psychological tests and techniques. They contend that the movement has many worthy achievements to its credit, but at the same time they acknowledge that constructive criticism is stimulating to a science as young as it is. With these considerations in mind the present writer, himself an enthusiastic but critical mental tester, will attempt to explain briefly the problems in which the movement was conceived, the basic principles upon which it rests, the methods now used, and the results of the application of such techniques to personnel and guidance problems.

Mental tests were developed as a partial answer to human problems. Industrial personnel departments, feeling somewhat the inadequacy of traditional methods of selecting workers, have tried to solve their problem by search-

ing for improved methods. Society in general sees the problem of unemployment and relief—the industrial misfit, the maladjusted worker, the “twisted” personality, and the social and economic misfit—as perhaps the social problem, not only of depression but also of so-called normal times.

Binet, famous for his achievements in intelligence testing, faced the difficult problem of detecting mentally handicapped children in France. At the time of America's entrance into the World War, army officials and army psychologists were confronted by the problem of utilizing quickly and efficiently untrained recruits. The American school system, awakened in recent decades to the great range of individual differences in American school children, has attempted to meet the problem of providing for individual needs by offering varied curricula. American colleges have been uneasy concerning the problems of student mortality, unwise vocational objectives, wasted talents, and neglected opportunities. Mental tests were developed as a partial answer to human problems such as these.

Psychology, like other sciences, is constantly revising its hypotheses and testing its generalizations, but it does profess to have certain basic assumptions upon which it builds and validates its techniques. Let us examine several of these principles.

The Biological Curve

FIRST is the fact that *human traits are distributed according to a dependable and uniform pattern*, commonly called the normal frequency curve, normal probability curve, or biological curve. Again and again it has been observed that physical and mental characteristics, and moral and personality traits, are so distributed among the human race that most people are found close to the group average, with fewer and fewer toward the upper and lower extremes. Most of us are about average in height, weight, intelligence, honesty, extroversion-introversion, etc.; a few of us are very tall or very short, very fat or very thin, geniuses or idiots, uniforms honest or dishonest, extreme extroverts or introverts. Here we find one of the dependable sequences scientists talk about, one of the dependable sequences of psychology.

Everyone Has Some Strong Point

IN THE second place, we observe that *these traits may assume strikingly different combinations in different individuals*. It is probably true, as Viteles⁸ points out, that most of an individual's traits are closely packed around the average of his traits, with a few strong and a few weak traits further removed from this central tendency (the normal curve again); but it is true also that every individual pattern of characteristics is in some respects unique. Cutting clear of heavy psychological theory and controversies involving general and specific factors as developed by Spearman and Thorndike, we are justified in another well established generalization: *weakness in one trait or several traits does not mean weakness in all traits, and strength in one or more*

traits does not mean strength in all traits. In other words every individual probably possesses some aptitudes or capacities in which he stands above average, and some traits in which he stands below average in comparison with his fellow men.

Personnel men and vocational counselors have seized the concept derived from this second generalization, and have embodied it in a most encouraging philosophy. It means, if we are patient, if we dig far enough into human personality, and if we apply proper techniques, that talents can be discovered and abilities can be tapped and developed, in the ordinary worker in industry and student in school to make him a better vocational prospect and a better member of society. It may be advisable to build up some of his weaknesses, but above all he should be encouraged to capitalize on his strong traits.

How Much Does He Have?

THE third generalization, which follows logically after the first and second, states that *these differences which we observe in people are after all differences in degree rather than differences in kind*, differences in quantity rather than quality. It is not so important to find out whether John Smith possesses this trait or that (no doubt he does, in some degree); it is of great importance to learn how much of this trait he displays in comparison with his fellows. After all the difference between a bookkeeper and an accountant, for example, or between a mechanic and an engineer, is chiefly one of degree, not of kind.

Probabilities of Sciences

A FOURTH generalization is to this effect: *All psychological generalizations must be expressed in terms of probability, not certainty.* All sciences dealing with man must surround their predictions with allowance for error. We can rely upon the law of large numbers, but we cannot predict with certainty the behavior of a certain individual. We know how many men age 40 will die this year, but we do not know who the unfortunate members of that group will be. Statisticians can calculate closely the number of marriages, births, suicides, or automobile accidents per 1000 for 1941; but they cannot pull individuals out of the masses of data themselves.

Of course John Smith's doctor may diagnose his case individually and tell him that his chances are only 1 out of 10 unless he makes certain changes in his mode of living. Again he may tell a patient that his chances of surviving an operation are 98 in 100; he may predict that a pneumonia patient's chances of recovery are perhaps 94 out of 100² if sulfanilamide is administered, whereas they would be 75 out of 100 without the new drug. Similarly we personnel men in industry and education are assembling our probabilities and our predictions. We are now able to say that a job applicant A with a certain psychological test score has a 75 per cent chance of being successful, whereas B with a certain lower score has only a 40 per cent chance. And we can predict, on the basis of college entrance ratings, a freshman's chances of

achieving satisfactory scholarship. Furthermore we are able to differentiate between fields from which this freshman may choose; he may be a poor prospect for dentistry but a strong prospect for engineering. And the freshman co-ed may prove to be a splendid candidate for office and secretarial work but a poor risk for nursing.

Psychologists constantly point out also that their statements of probability must be revised frequently. It may not be necessary, as one writer suggests, to date every psychological generalization, but it is the established policy of psychological science to check and recheck, revise and revise again, its statements of probability.

Much Better than Hunches

A FIFTH generalization follows from the others. Psychologists feel that *any psychological test or instrument in technique which is superior to the traditional methods of judging people, i.e. hunches, intuitions, snap judgments, etc., is worth while*. The literature of psychology is packed with evidence which shows that these methods and the pseudo-scientific methods of character analysis, phrenology, physiognomy, etc. are in most cases no better than chance. If a psychological test proves to be 20, 30, 90 percent better than chance, psychologists want such an instrument, and they intend to use it while they attempt to perfect a better one.

How the Psychologist Works

BACKED up by such a set of principles, psychologists set to work on these human problems to which we have referred. Their purpose is to develop short-cuts, labor-saving devices to reduce human waste and facilitate human adjustment in the factory, the office, the home, and the school.

How does the psychologist proceed? He selects samples of human behavior, tasks to perform, responses to record—items which differentiate between individuals. It is not sufficient that an instrument throws individuals into two or perhaps three classes or types, or that a test selects or rejects. It must reveal different *degrees* of ability, aptitude, achievement, or interest.

Now the selection of such test items is a painstaking process which requires rigid elimination of useless (undifferentiating) items and careful standardization, statistical evaluation, and calibration of the items retained. As a recent writer says, a good test is a product of "patient verification of facts, a remorseless checking of hypotheses, an insistence that every generalization be well-founded."³

Furthermore the psychologist does not claim that his test measures the ability or trait in question directly. He measures intelligence, as the engineer measures electricity, by what it does. When he assembles items which differentiate between known cases of mental deficiency and genius, more than that, between degrees of ability, he says he is getting at general intelligence. When he gathers items which distinguish clearly between good, fair, and poor stenographers and clerical workers, he says he is trying to measure clerical aptitude. When he finds a technique which sharply distinguishes between successful and unsuccessful substation operators, in

fact does a better job of selection than a personal interview or letter of application, he cautiously states that he is tapping the ability required to do this type of work. When he finds items which clearly distinguish between successful and unsuccessful nurses, he may for want of a better term call his instrument a test of nursing aptitude.

Similarly he has developed in the last 30 years various tests of achievement, general aptitude, special aptitude, interest, and personality. He may be pardoned for calling these tests measuring instruments, and speaking sometimes as if he were measuring the trait or quality directly. Actually he knows that he merely taps a sample of behavior, uses a selection of responses. He is justified in carrying on his work, because his efforts have piled up a mass of evidence which cannot be ignored.

Tests Supplement Good Judgment

WE MUST admit frankly, however, that many bad tests have been placed upon the market. Several recent articles have exposed examples of some of the worst. Many cases of shoddy, unscientific work can be cited. But we must not assume, as one writer, that all of the good work was done by Binet and his followers in the field of general intelligence. Brilliant work has been submitted from numerous sources in the fields of achievement, special aptitude, and interest; and significant beginnings have been made in the field of personality measurement.

Research in recent years has been especially fruitful, because actual calibration and standardization have been based upon huge samples of the population, available now from our recent advances in machine scoring and statistical technique, and with the cooperation of an army of psychologists and personnel administrators in industry and the schools.

Of course the layman, as well as the psychologist, must realize that even a good instrument can be a dangerous tool in the wrong hands. Many so-called mental testers have violated standardized procedure, have claimed uncanny accuracy, have made amazing predictions, have broadcast shaky generalizations, and have been guilty of questionable interpretations. Psychology and the mental testing movement, like astronomy, physics, and chemistry, have had some very undesirable in-laws.

We must learn that tests merely provide more refined statements of probability, not statements of certainty as some pseudo-psychologists would have us believe. We must constantly remind ourselves that the tests do not decide, they merely provide a valuable supplement to good judgment and subjective evaluation.

Strong's Vocational Interest Test

LET US now examine the credentials of some of our best tests to see if they measure what they purport to measure, or, as the psychologists would express it, let us check the validity of these instruments. Let us call these tests by name and refer to samples of the literature on testing.

Professor Strong's *Vocational Interest Blank* may serve as a starting place. This blank has been employed for more than ten years. It has been revised recently and is now arranged for machine scoring. Separate forms are provided for men and for women. As now assembled, the blank provides approximately 400 items concerning occupations, amusements, school subjects, activities, peculiarities of people, and estimates of present abilities and characteristics. Subjects are to indicate whether they would like, dislike, or be indifferent to each item. There are no right or wrong responses. A high score is no better than a low score, an "A" rating in no way superior to a "C" rating. The test, as we mental testers call it, is not a test of aptitude, nor a test of ability, nor does it tell the proper choice of vocation.

By means of thorough calibration and standardization that would challenge even the work of Binet, Professor Strong has provided a measuring stick for vocational interest. No, not directly. The test does not show directly that John would be interested in engineering, or law, or office work, or selling. It merely compares the degree to which John's interest pattern on the 400 items agrees with the interest pattern of successful men in each of some 30 occupations. Professor Strong has evidence^{4, 5} to show that most members of a profession (and he has picked large, representative samples of successful persons) tend to express the same patterns of preferences on these 400 items, although some occupational groups have more heterogeneous interests than others.

Results with Engineers

BUT how valid is the test? Here are samples of the evidence^{4, 5} which is being accumulated. For example, of a group of over 500 engineers, 75 percent rated A, 23 percent B, and 2 percent C for engineering. On the other hand, 15 percent of a group of 900 non-engineers rated A for engineering, but most of the 15 percent were engaged in vocations related to engineering. Here then are the marked differences which a good test must provide. Another study shows that "whereas 63 percent of a group of non-law seniors rated C as lawyer, only 15 percent of the law majors rated C, and none of this latter group was planning to enter law."^{4, 5}

Professor Strong has evidence to show that "(1) men continuing in an occupation obtain a higher interest score in it than in any other occupation, (2) men continuing in an occupation obtain a higher interest score in it than men entering some other occupation, (3) men continuing in an occupation obtain higher scores in it than men who change from that occupation to some other, (4) men changing from some other occupation to occupation 'A' score higher in 'A' prior to the change than they did in other occupations."

And still more evidence⁶, this time for women: of 500 married women, none rated as high for physician as the average woman physician, and 66 percent of these married women scored lower than the physician with the lowest score.

And in the field of selling⁵: of 181 life insurance agents 105 rated A for selling

and 16 C. Furthermore 67 percent of the insurance agents with A ratings sold \$150,000 or more business a year, whereas only 6 percent of the C men reached this figure; and 39 percent of the A men sold over \$200,000 of insurance annually, whereas none of the C men reached this figure. It is not surprising that life insurance companies are impressed with the differential factor of the *Strong Vocational Interest Blank*.

How Personnel Men Use It

BUT how does a personnel man use this interest test for hiring or guidance purposes? Again we must suggest thinking in terms of probabilities rather than certainties, and we must remember also that interests, like other personality traits, do change, especially between the ages of 15 and 25. With these qualifications in mind, it may be asserted that a young man or woman should find satisfaction in that occupational field or combination of fields in which he has A or B-plus interest ratings, provided of course he has also the required ability. The personnel man may safely advise job applicants or students that they should not enter occupations in which they have B- or C ratings unless "they are definitely assured that their other assets are sufficiently strong to counteract the fact that they do not resemble in interests persons engaged in the occupation."¹

Considerable space has been given to the Strong Blank because it is frequently misused, misunderstood, and criticized. Let us now examine briefly a good test of general aptitude and several tests of special aptitude. We can pick out only a few of the best ones. There are many others of equal merit (as well as the numerous unscientific tests of questionable reliability and validity—tests which have no place in a testing program).

Test for Rapid Hand Work

AMONG the best *Dexterity Tests* are the *Finger Dexterity Test* and the *Tweezer Dexterity Test*, developed by Johnson O'Connor. They are a part of the test battery employed in *The Human Engineering Laboratory* at Stevens Institute of Technology and Armour Institute of Technology. The tests require the subject to fit small metal pegs into holes in a metal board, with the fingers or with a tweezer. Do the tests really measure dexterity? Dr. O'Connor is very cautious in his claims, and he insists that a great amount of research remains to be done on these techniques; but he would probably permit us to say that the tests do differentiate between occupational groups, although "there are wide variations within some of these occupational groups."²

It seems safe to assert that the finger dexterity test taps a type of ability needed in occupations requiring rapid hand work with small objects, and that the tweezer dexterity test samples activities analogous to those employed by workers who use fine instruments.³ One study may be mentioned: "... 36 women applicants were

interviewed, rated, tested, and hired for factory assembly work. Of those whose scores were in the lowest quartile, 36 percent terminated their employment before 8 months of service, while only 6 percent of those in the highest quartile left during the same interval. Over 50 percent of those who had been rated 'A' by interviewers left the concern in this time.

Test for Clerical Workers

THE *Minnesota Vocational Test for Clerical Workers* is a speed test in which the subject rapidly checks off pairs of numbers of names, indicating whether or not they are the same. To summarize numerous studies, we may say that the authors (1) have evidence to show that the test has a high degree of reliability, differentiates sharply between employed clerical workers and workers in general, and predicts significantly success in commercial training and on the job. Furthermore the test seems to measure aptitude, not training, because training does not appear to improve test scores. And finally this aptitude seems unique, because the test does not show a significant relation to general intelligence.

Test for Nurses

THE *Adapted Test for Nursing*, developed by F. A. Moss and T. Hunt, has been used for several years by numerous hospitals and testing bureaus. The test can be administered in less than an hour. It consists of "seven parts, dealing with scientific vocabulary, general information, understanding of printed material, visual memory, memory for content, comprehension and retention, and ability to understand and follow directions" (4).

Does the test differentiate between successful and unsuccessful nurses? A report of a study (7) of 500 nurses in 12 hospitals provides a partial answer to this question. The tabulations show that of those who scored below 60 on the test, 29 per cent received grades in academic work and 80 percent received grades in practical nursing of 85 or higher. The data indicate also that none whose scores on the test were in the upper half failed in either academic work or practical nursing, but on the other hand only 7 percent of those who scored below 60 failed. Such differentials, although suggestive and usable in guidance, are not entirely satisfactory, of course.

This particular problem is complicated by the probable lack of validity of teachers' grades and the possibility that standards are not sufficiently high in some of our nursing schools. Such inconclusive evidence illustrates the difficulty at times in validating an instrument when the validating criterion itself may be subject to error, and it suggests that extreme caution must be used in making interpretations.

Test for Students

THE *American Council Psychological Examination* is representative of the best tests of general aptitude or intelligence. A new form is prepared each year by the Thurstons of the University of Chicago, and is published by the American Council

on Education. In recent years the examination has been used as a part of a battery of entrance tests by several hundred colleges. Combined with high school grades or high school rank, it provides a valid basis for predicting scholastic success on the college level.

It is possible, for example, to convert high school ranks and test scores into percentiles ranging from 0 to 100, which can be combined as a College Aptitude Rating. The validity of such ratings is now well established by numerous studies. For example, a recent study by the writer indicates that 87 percent of students with C.A.R.'s (College Aptitude Ratings) between 76 and 100, 62.5 percent with C.A.R.'s 51 to 75, 21 percent with C.A.R.'s 26 to 50, and 0 percent with C.A.R.'s below 25 made C or better averages in their first semester in an engineering college. These probabilities are based upon comparatively small numbers of cases, but they have remained relatively constant for two years. Such findings suggest the need of pre-college guidance and revised educational and vocational goals for many students.

Many other examples of psychological tests could be mentioned. Enough evidence has been presented to suggest that significant progress has been made in the fields of general aptitude, special aptitude, and interest. Many good trade tests have been developed also for industrial and vocational uses. Notable contributions have been made in the field of achievement testing—mention should be made of the excellent work of the Cooperative Test Service. Efforts to test personality and character traits are still in the pioneer stage, however. Although notable progress is now evident, it is probable that in this field another major contribution like Binet's in intelligence testing, still lies in the future.

Selected List of Industrial Results

AND now a word concerning "the follow-up" of this testing procedure. After these tests have been applied to the solution of our problems, what are the outcomes? Space permits us to mention but a few of the findings. First we shall list several industrial applications, most of which have been summarized by Viteles (8, 9). These are results which have followed after psychological methods were put into operation:

1. A 35 percent reduction in 3 years in the number of operating errors charged against electric substation operators.
2. An 11.6 percent decrease in production time and a 14.3 increase in quality for metal trade apprentices.
3. A lower proportion of labor turnover among metal trade apprentices with high scores than among those with low scores.
4. Reduction of labor turnover from 55 to 10 percent among cigarette packers.
5. Reduction of labor turnover among foundry workers from 11 to 2.9 percent in 5 years.
6. Reduction of labor turnover from 25 to 15 percent in an English textile mill, and from 50 to 12.5 percent in a Dutch lamp manufacturing plant.
7. Among motormen a reduction from 14 to 0.6 percent in the number of men discharged because of accidents.

- 8. An annual saving of 150,000 francs in training, and a saving of 1,300,000 francs in reduced accidents, resulting from improved selection of autobus operators in Paris.
- 9. A rapid and continuous drop in accidents in a taxicab company.
- 10. An increase in the average number of miles between accidents from approximately 12,000 to over 56,000 miles in six years, for a company operating a fleet of trucks and passenger cars.
- 11. A prediction that 93 percent of mail distributors selected by the Civil Service Commission from the upper 25 percent on the basis of test scores will be above average on the job.
- 12. A Civil Service study showing that 99 percent of those rating in the highest 25 percent were above average in efficiency, whereas 96 percent of those in the lowest 25 percent were below average in efficiency.

Those industrial applications are perhaps more striking than the results recorded in school testing bureaus. But analyses of case summaries, individual profiles, and follow-up studies of the high school or college counselor are equally convincing, although they frequently fail to show in tangible form percentages of saving or lowering of unit cost. We can assert with confidence, however, that the efforts of counseling services, testing bureaus, Human Engineering Laboratories, guidance clinics, etc. have helped thousands of young men and women to make superior occupational and educational adjustments.

Results in Schools

WE EDUCATIONAL counselors have compared college grades before and after counseling, and we find significant improvement for many of those who have followed the recommendations offered. We have made prediction studies, comparing predicted with actual scholarship, and have found close agreement; for example, a recent study by the writer indicates that actual college scholarship varied from predicted scholarship by more than one letter grade in only eight percent of the cases. But, of course, we find little satisfaction in predicting failure, as we have been forced to do at times, because our objective is the optimum adjustment of each student.

We have recorded and classified various personality problems which our students have brought to us, and we have tried to diagnose them and applied such remedial measures as were available; and we find in our files many, many case histories which show distinct improvement. We have begun more extended follow-up studies, checking progress on through training and out beyond into business, professional, and industrial life; and here too our results are encouraging, but not yet conclusive, because our techniques are new, and much research remains to be done.

Future Applications

THUS the evidence is accumulating year by year. Yes, the mental testers think they have something. We who are cautious make no extravagant claims, none of this talk of uncanny accuracy, no spectacular findings. But we do insist

that we have in our hands a new and better set of tools needed to supplement old techniques. As we continue to improve our methods, to re-examine our criteria, to search for better differentiating symptoms, we shall use the best psychological instruments available, as a means of fitting men and women and jobs, an approach to the problem of labor turnover and accident proneness, a technique for relieving at least part of the maladjustment of the industrial misfit, a device to be employed in lowering unit costs of production, and a method of attack on students' problems in our schools and colleges, with possibilities of enormous saving to society in the form of increased efficiency and a greater volume of goods and services, with a greater degree of human satisfaction.

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Many Employers Wonder Just What is on Their Workers' Minds—Not the Big Problems which Break Out Occasionally, like Spontaneous Combustion in Violent Strikes, but the Small Smoldering Tinder which Continually Threatens, if not Extinguished, to Burst into Flames.

Requests *and* Complaints of Unionized Workers

A Case Study By FRANK T. DE VYVER

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MINOR requests and complaints of workers seldom receive any publicity, for they are not spectacular. There is seldom any record kept of them. Personnel managers know in general the type of problem which irritates workers, but there is little knowledge of details.

It is fortunate therefore, that the chief executive of a large southern textile mill decided to keep a written record of requests and complaints made by the unionized workers in his mill.

Seniority Problems Most Frequent

AN EXAMINATION of four hundred and forty-seven requests and complaints made over a fifteen month period in this southern textile mill indicates several important facts. As summarized in Table I, page 337, seniority questions accounted for the largest number of these written requests for investigations. If the employment records of the mill had been kept according to best personnel practices, most of these complaints need never have been made. Second and third in importance were disputes over persons or over working conditions. Of small importance, as a result of the union agreement, were disputes over wage rates.

In the second place, all of these matters were settled at least to the satisfaction of the appropriate shop committee. Sometimes the settlement merely involved a detailed explanation, most often the request was granted; occasionally the request was refused. In such cases, however, the decision was never couched in arbitrary terms, but a reasonable explanation was given. In other words, the management of the mill had no trouble with arbitrary demands backed by arbitrary threats. Both the union and the management tried to cooperate.

REQUESTS AND COMPLAINTS OF WORKERS

Lastly, it should be pointed out that many of the complaints against persons were made against petty bosses such as second hands and section men. Apparently the workers found in general that the superintendent and higher officials tried to "go down the line" with them. Their immediate bosses occasionally could not remember that union-management cooperation required a different technique than that required under the "führer" system.

There is no way of knowing whether any of these amicably settled disputes would have led to more universal discord had they not been settled, but certainly little things frequently cause serious labor unrest. Union-management cooperation, though it takes more time and patience than dictatorial decisions from above, makes

TABLE I

A SUMMARY OF 447 REQUESTS AND COMPLAINTS MADE BY WORKERS IN SOUTHERN TEXTILE MILL, CUMMINGS, GEORGIA, DURING STRIKE

REASON	NUMBER
Seniority and Jobs	
Requests for exchanging jobs	27
Seniority disputes with others	0
Asking for new openings	24
Total	51
Suggestions and Cooperation	53
Complaints Against Individuals	
Minor officials	15
Workers concerning work	34
Workers for personal reasons	33
Total	82
Infringement of Working Rules	23
Wages	25
Working Conditions	11
Total Recorded Requests and Complaints	167

for better understanding, by both men and employers, of the minor irritants that arise in any plant.

Strike Aftermath

THIS mill, located in the deep South, had until a few years ago no relations with organized labor. With the expansion of unionism following the passage of the N. I. R. A., the workers in this mill were organized, and in 1935 joined with thousands of other textile workers in the general textile strike of that year. Although the management refused to enter into a collective bargaining agreement, there was a written agreement ending the strike. One of the sections provided that all complaints should be made in writing, and should be put on record, along with the response of the appropriate shop committee and of the management.

Simple Settlement in Most Cases

DURING a fifteen month period studied four hundred and forty-seven requests and complaints were filed with the management. An analysis of these offers evidence of the type of friction which often makes for sulky, dissatisfied workers. A study of the action of the management with respect to each indicates how simply most disputes may be settled, though they loom large to the individual employee.

Note. For obvious reasons the name of the mill is withheld as well as too many definite hints which might enable it to be spotted. All names used are fictitious. All data, however, were copied from the original complaint sheets and in many cases the original language and spelling has been retained. Profanity, which was widely scattered through the original documents, has been deleted.)

This is not, however, an attempt to outline a history of labor relations in the particular mill from which these examples were taken. The growing pains of collective bargaining in a southern mill, where ten years ago the very name "union" was anathema, would make, certainly, an interesting study. We are here concerned not with the development of collective bargaining but with the type of request and complaint made by workers given the chance, as they apparently were, for free and open discussion.

The matters brought up by workers have been classified according to subject. Such a plan has, to be sure, sometimes necessitated arbitrary classification since actual motives may be different from those expressed, or since a complaint might conceivably be placed in two or more categories.

Most numerous among letters were those relating to seniority or requesting specific jobs. Of the 447 letters 218 asked whether A or B should have a particular opening, whether B and C might exchange jobs, or whether D might have first place on the extra board. In reality many of the letters in this group could be called requests rather than complaints, though occasionally one senses a trace of bitterness in the illiterate words.

Property Rights in Job

THE agreement ending the strike in 1935 laid down certain general rules with reference to seniority and lines of promotion. In the first place a man's job was his property so long as he did his work efficiently. He could not, however, dispose of it to another, though he might exchange it with a friend for the latter's job if the exchange were satisfactory to the appropriate shop committees and to the management. In such cases seniority rights were lost by both parties.

The agreement further provided that in the event of an opening those eligible to fill it would have ten days to apply, at the end of which time the job would be given to the applicant with the oldest service record, or if there were no applicants, to the person whom the overseer might select. With forethought many workers sought to establish their seniority rights in anticipation of future openings.

Requests for permission to exchange jobs accounted for only twenty-seven of

these matters involving seniority. In some cases no reason was given for the exchange; in others workers exchanged so that each could make more money or because of mutual preference for the other's shift. In each case the request was granted.

Job Change to Improve Health

ONE of the more interesting examples of this type of request was that of Jennie B. Barker, a frame hand, who asked to change jobs with Tom Yorke, a doffer. "Through Legal Procedure," she wrote, "I want to change Jobs with tom Yorke a doffer on dayrun for a period of 6 weeks to see if my health will Improve I know if I am allowed to change jobs I will not make as much But I will be willing to change anyway Mr. Yorke will make more on my Frames than he does Doffing. I have talked to tom Yorke and the change is O.K. with him for 6 weeks I would like to change Monday." This request was endorsed by the two shop committees involved and approved by the overseer.

True seniority questions were of two types. In sixty-five cases workers disputed their seniority rights with others and in one hundred and twenty-six instances workers merely asked for new openings, or for a chance at the next opening on the basis of their own acknowledged seniority rights.

When two workers were involved the management made the final decision. Sam Gordan, for example, "Through Legal procedure" filed a complaint saying that he had seniority rights over W. H. Fraylor as "extra fixer or section man." Feeling, he said, that his experience gave him rights over the other man he referred his complaints to the the Committee to be settled. In this instance the complaint was carried no further than the appropriate shop committee which decided that Traylor should keep his seniority rights over Gordon. Included as part of the committee's record was the testimony of several people upholding Gordon's claim.

Did He Quit or Was He Fired?

APPARENTLY seniority in this and many similar cases rested upon the claimant's status during sporadic periods of unemployment in his work history. Under such circumstances the committees and the management had to decide whether a worker had quit, had been fired, or had merely been laid off due to lack of work. Employment records in Southern mills have not always been of the best.

In by far the larger number of seniority cases, however, the workers had no quarrel with other workers or with the management; they merely wished to record their claim or make a routine request for a transfer. Many workers, for example, filed complaints similar to that of Sadie Lowder who wrote: "May I make application for first opening as doffer. Thanks in the future for your consideration."

To such request, endorsed by the appropriate shop committee, the management invariably agreed. "Lowder is a capable doffer," read the answer to this particular note, "and it is hereby agreed that she is to get the next doffing job that comes open to which her seniority entitles her."

"I Would Like to Go to School"

OTHER employees, like Jeannette Carstairs, merely wished for various reasons to change shifts. Miss Carstairs wrote, "I would like to change to the second shift, as I would like to go to school, if it is satisfaction with you." Ordinarily in such cases, the shop committee approved the request and the management agreed to make the change as soon as possible.

Occasionally, to be sure, the shop committees and the superintendent were unable to grant such requests. Refusals, however, usually involved situations in which the complainant had been misinformed with respect to his seniority or the existence of an opening. Miss Ohlheim applied, for instance, for two sides (spinning) formerly run by a Mrs. Merrifield. The request had to be denied because Mrs. Merrifield had not given up her job permanently.

Cooperative Suggestions

A SECOND general group of letters can be classified as suggestions to the management or attempts at union-management cooperation. Many companies have long used a plan of paying workers for suggestions found valuable to the company, and the "new unionism" provides for union-management cooperation to increase marginal productivity of the working force.

The fifty-five letters in this group offer a variety of suggestions for improving details in a single department as well as for general mill management. That in many instances these suggestions were aimed at lessening the employees' work does not detract from the fact that in nearly all cases the management apparently appreciated the idea involved, and at least took the matter under advisement. When suggestions could not be followed, the management, through the overseer or superintendent, gave detailed explanations. Such practices with respect to suggestions undoubtedly created better feeling among the workers involved.

Of interest as an example of a suggestion to increase production was one made by the shop committee of the warp room which recommended "that spinners and doffers have their work arranged so that a spinner or doffer will have their jobs on either two lines of frames either side of the Big Alley. This will stop them from working all the way across the Room and from crossing the Big Alley." In accepting this recommendation the overseer remarked that it showed a splendid spirit of cooperation in the department organization.

Coordination to Increase Production and Wages

IN ANOTHER instance the shop committee directed the attention of the management to a lack of coordination between two units of the plant. The speeder machines in number one card room were waiting for bobbins while a surplus of the same type of bobbins accumulated in the card room of number two mill. The superintendent

arranged to have the surplus bobbins sent to the number one mill. The suggestion not only permitted the piece-paid speeders to earn more but also aided the management by increasing production.

Three instances may be cited in which workers asked for improvements not connected with actual production. One shop committee asked that the swinging windows be fixed for, they said, "it has got dangerous to get around one. When the wind is blowing and thair has been Sevrel People hurt by them and thair ant Been nothin done yet about fixin them." They were asking this, they concluded, "Before some one gets killed and then it will bee to late and it is a Big Damage to the Company like it is."

Improving Working Conditions

ANOTHER group in the same spinning room asked for dressing rooms for both men and women. "We can't hang our clothes in the hydran room they get wet," they said, and concluded that they would appreciate the management's attending to the matter. The management said they would take the problem under advisement. Workers in the same room complained about the toilets: "The Hydrans," they declared, "have been neglected they are not scrubed as often as they should be there is not enough Ventilation in an around the hydrans. The water pipes are bursted keeping the floor standing in water all the time." The management promised to ventilate the toilets.

To be sure, none of these fifty-five letters brought anything of great importance to the management's attention. Nevertheless, to the workers making the suggestions the ideas were important.

As might be expected, a number of complaints were filed against individuals. These may be divided into three classifications: complaints against minor officials, complaints against workers who the shop committees felt were not doing their work properly, and personal complaints against fellow workers. Occasionally internal evidence reveals that the complainant bore a grudge against the defendant, or that a union member found a non-unionist particularly liable to censure. Usually, however, the complaint being worded in general terms, such personal vehemence is not apparent.

Complaints against Supervisors

THE fifteen complaints filed against overseers and second hands illustrate the statement made by an official of another mill in the same city that the hardest part of dealing with a trade union after years of individual bargaining is to get minor officials to deal tactfully with workers. "A man," he said, "who has been used to having his word obeyed, no matter how dictatorially that word was said, finds difficulty in adjustment to a new order." (Verbal statement to author.)

Mr. Ranell, a second hand in the cloth room, lost his job because of the accumu-

tion of complaints against him. The final accusation was that before witnesses he had called a worker by a very foul name and threatened to whip him "all over this cloth room." Since the second hand had previously given trouble, he was dismissed.

Color Discrimination Resented

ANOTHER second hand, Mr. Raeburn, resigned rather than discuss the several complaints filed against him. His resignation was accepted. An interesting detail of this case was that the shop committee decided in favor of a Negro scrub woman rather than the second hand. The chairman of the committee reported that the scrub woman, Cecilia Joslyn, had been accused of smelling so bad that some of the help had complained, and that two of the committee had been called to the second hand's office to smell her. One of the men had refused to comment; the other had said "he thought she smelled good considering the job she had to run."

The second hand, however, had told the woman she "stunk so bad nobody couldn't stand her." Raeburn's nose apparently was more sensitive than the others for the chairman concluded his complaint against his boss by saying he "hadn't heard anyone say she smelled bad except Mr. Raeburn." The shop committee thus refused to allow even Negro scrub-women to be abused by petty officials.

Swearing Disliked

A COMMON complaint against the bosses was their use of profanity when giving orders or reprimanding a worker. Though they may have known the words, the workers did not care to have such words used against them. A second hand, for example, was suspended for one week because, read the complaint, "We was in the big alley before work time Mr. Johnson walked up and said every — — one of you get on your job and tend your own — — business." In announcing the suspension the overseer observed that "the use of profanity is unnecessary in any case and the help is entitled to the same degree of respect from the second hands that they expect from the help."

Complaints about Superintendents

EVEN the superintendent did not escape the complaints of the workers. His was an offense of which several others had been accused, namely, refusal to "go down the line," *viz.* cooperate with the union. In one case every member of the local union signed the statement accusing the superintendent of "agitating some strife." No record is available in this instance of the outcome of this complaint.

From time to time workers complained that their bosses were not properly attending to their work. The painters, for example, accused their boss of wasting the company's money by not keeping them busy. "We are not going to set down," they wrote, "and let you throw the puppy in our laps and discharge us for something that you are to blame for." The accused offered explanations and the promise to do better.

Another boss was accused of spending too much time supervising one woman. "He has been seen," ran the statement, "in this woman's allie 5 or 6 times in one night, as much as 15 minutes at a time; also has been seen giving her a cocola." The committee felt that such actions seriously affected the peace and harmony of the department.

Workers complained not only against their bosses but also against their fellow workers. During the fifteen month period under consideration, forty-eight such letters were filed, half of them accusing fellow workers of not doing satisfactory work, and half of them involving personal disputes.

Complaints about Fellow Workers

IT is difficult to decide whether the accusations that workers were not doing their jobs arose from an attempt at union-management cooperation or whether personalities entered into the matter. In all such cases, however, the management, through the overseers, accepted the recommendations of the shop committees. Mary Beson, for example, was accused of not being able to "run her job." "She has," read the complaint, "from eight to ten looms stopped all the time." The committee's recommendation that she be discharged was accepted by the overseer.

Most of these complaints dealt with minor infractions of working rules or with accusations that another worker was not doing his share, thus making it harder for the complainant. In either instance the guilty party was suspended for a period commensurate with the offense or warned that work must be improved. Occasionally a second hand would use the complaint procedure to help his own discipline problems. Two women spinners, for instance, were accused of slacking on the job. "I even have to whistle them out of the hydrant or send for them," complained the boss. The overseer gave both women indefinite layoffs. Even such complaints, however, were sent through the regular shop committee procedure.

The twenty-four personal complaints dealt with many subjects. The shop committees complained that a fellow employee had come to work drunk, or that one of their fellows had been stealing, or taking advantage of another in some other way. One girl had had an altercation with a man in the card room over the amount of his bill for drinks. The settlement in this last case was typical of those made of these interworking arguments.

The dispute was investigated; the complainant was found to be in the right; the defendant was given the choice of apologizing for using abusive language in the presence of a lady or of being discharged; he chose the latter. In some cases no choice was given, the defendant being suspended for an appropriate number of days.

Arguments over Union Membership

SURPRISINGLY few were the arguments over union membership, either because most of the workers belonged, or because of the agreement that union organization would not be discussed during working hours. Two such complaints, considered

as a unit by the management, illustrate some of the hard feelings generated during a unionization campaign and also a sensible way of handling a trying situation.

Greenwald, when asked why he didn't join the union, replied that there were several reasons, one of which was that the union never did anything. On another occasion he remarked that it made him so mad for anyone to say anything to him about joining the union that he could hardly stand it.

In another room Powell had been "making remarks and cussing the people and the union." He was accused of saying that "there wasnt nothing to the union people but a bunch of radical fools" and that any man that belonged "to the union wasent any better than a yellow dog." Then followed fighting words. The accused called one of the union men "out of his name" and claimed that "the union was rusha Red and that it wasnt American Ism. It was got up by a bunch of reds and dogs and it ant no good for a man to belong to."

No Union Activity on Company Time

THE management settled this situation with very little disturbance. Union members were reminded that according to agreement "all union activities were to be carried on outside the fence except such activities as were necessary for the handling of complaints in the departments." "With the above in mind," concluded the management, "it would seem that Powell and Greenwald were not entirely to blame in that they were approached and talked with while at work." The company promised to explain to these men, however, that they were to stop causing trouble with their conversation; at the same time union members were urged to remember their pledge concerning union activity during working hours.

All of these personal difficulties well illustrate the type of dispute which, when brought to the surface, can easily be settled with a minimum of hard feelings but which, if allowed to smolder, would probably have upset labor relations and resulted in decreased production.

Villagers Have First Choice of Jobs

A RELATED group of twenty-five complaints dealt with infringement of working rules. One such rule was that when workers were needed those living in the village were to have first choice. The grievance committee studied the matter and recommended that ninety days' residence in the village be required before an individual might be considered for work in the plant.

If no village worker were available, the management might hire from any available source. The committee's recommendation was accepted by the management, and only in seven cases was the complaint made that an outsider had been hired when a villager had been available. Apparently in none of these instances was the management attempting to circumvent the rule, for when the error was noted the person in question was discharged.

Another working rule in the original agreement was that persons not reporting for work and failing to notify their boss were subject to punishment by suspension. During the course of the fifteen months, seventeen instances arose in which this rule had been disobeyed. In all but one of these the workers was penalized by one week of layoff for each day he was absent without excuse. The exception was a worker who had a sick child with whom she had stayed up all night, and both the shop committee and the management agreed this was a legitimate excuse.

Union Aids Absenteeism Curb

CLEARLY this rule against absenteeism was a management rule, passed in an effort to regularize attendance. The union, nevertheless, made the rule its own and sought to obtain uniform enforcement. Although realizing it was a company rule they were enforcing, union officials none the less saw in it a reasonable restraint particularly when many names were on the extra boards, *viz.*, lists of possible workers.

This attitude was well expressed in a complaint filed against J. S. Cras. "He does not work half of his time," complained the committee. "He has not a reasonable excuse for being off so much. We the committee recommend that his job be given to some one who wants to work. We think that he should be put at the bottom of the spare board."

The management in enforcing this rule went so far as to ask the general shop committee and the grievance committee to formulate general regulations for absence from work. This the men did, and regulations were posted in the plant. No better illustration could be found of union-management cooperation for enforcing a rule which both helped union members on the spare board, and certainly aided the management.

One other type of self-discipline was found among the complaints. As in any mill where large numbers of men are employed, a certain amount of "horse play" took place. Ordinarily this is condemned by the foremen and the culprits are punished. In this plant, however, the shop committee asked the overseer to cooperate "in eliminating any act playful or any other way that would tend to promote any injury." The overseer agreed to cooperate by posting a notice on the bulletin board that under penalty no playing would be allowed in the room.

Few Wage Complaints

INTERESTINGLY enough, during the fifteen month period, only twenty-five complaints were made about wages. This small number was probably because of an understanding, made when the mill reopened after the strike, that requests of individuals or groups for increases in pay would not be considered until the Company could make adjustments in rates for all employees. With one exception, which the company on the above grounds refused to consider, complaints about wages

concerned inconsistencies in wages and did not involve general or individual increases.

Mr. Yellen's complaint is typical of the type of maladjustments corrected through the action of shop committees. He wrote saying, "You all paid him (another worker) \$18.40 and have got me on the same job and paying me \$17.40. So I think I am to get the same as he was getting as I am doing the same work he done." He was granted an increase in pay.

Others based their complaints not on what fellow workers were being paid but on the fact that their particular working conditions made it impossible for them to "make out." Mrs. Jones, for example, asked that "this coarse work be removed or have the price of hank adjusted fair." "This work is heavier," she said, "that there is more work to do on the Frame than there was on Fine Roving and I think I should have more per hank than I get on the fine frame." This particular request was not granted, but with this and similar complaints the important point was the detailed explanation of the decision given by the management.

Idle Time and Work Assignments

AN INTERESTING series of cases concerned procedure when a machine was idle through no fault of the operator, the question which arose being whether the operator should be paid for such idle time. After one second hand had paid a woman for the time, others immediately sought the same privilege. The shop committees and the management agreed that for an ordinary break down no payment need be made the idle workers, and that Mr. Jeffries, the second hand, should reimburse the company the eighty-five cents extra he had mistakenly approved.

The final group of sixty-one complaints to be considered have been classified perhaps somewhat arbitrarily as dealing with working conditions. Typical of sixty-one complaints about working conditions were seven identical letters from the second shift drawing frame operators. "We think that you are putting to much cleaning up on us to do," they wrote. "We want one hour to clean up on Friday or else have part of the cleaning up taken off of us. We do not have time to run our jobs and clean them up to."

Typical also was the disposition of the complaint made by the shop committee with the concurrence of the management. The hands on the first shift were to be required to "clean the rocker arms and the weights each Friday in addition to the other usual cleaning that they have been doing heretofore." In this way, read the report, the cleaning work can be more evenly divided.

Stretch-out Fears

SINCE textile operators during this period were constantly worried by the possibility of the imposition of a stretch-out system, several of the complaints about work referred to these fears. The workers in one instance asked that the speed of two

motors be reduced. The disposition of this complaint was the overseer's decision to have the motors checked by the mechanical department.

In another case the checkers, press men and doffers complained that "an unfair precedence has been established by starting a stretch out system in the cloth room." To this the overseer replied that "The checkers, press men and doffers work will not be increased any. They will still follow the same routine of work."

A third general type of work complaint dealt with the distribution of labor between shifts. The shop committee in the first shift spinning brought to the attention of the overseer the letter of Helen Marcy. "The spinners on the third shift," she wrote, "make a practice of leaving my sides stuck up they fail to do any cleaning off at all. This morning the sides were completely covered with cotton and stuck up so bad, I had to stop the frames and clean them off before I could run them." In answer the overseer explained that there was new help on the third shift, but that in his opinion "such conditions as had been complained of would be remedied within a few days."

Who Should Do the Job?

ON SEVERAL occasions, at least, workers complained of the type of work given them to do. They felt that a spinner should not have to do doffer's work, or a doffer a sweeper's task. In one case men in the machine shop made several such complaints. They thought there should be a plumber inside the mill, for "We dont think it is giving us justice to have machinist's to do pipe work." This feeling was not a result of a jurisdictional dispute such as might be aroused in a unionized building project. The machinists merely felt they had enough to do and that the pipe fitter never helped them with any of their work.

The other complaint of these men not only illustrates division of labor according to skills but also according to race. Apparently not sure that they would be relieved of plumbers' work, the machinists concluded their complaint letter as follows: "We think unstopping Toilets is out of a White Man's Class of Work, it ought to be done by Negroes. You would not unstop Toilets Your Self. You should have the same Respect for your Employees You have for Your Self." In this particular case no indication was given on the report as to the disposition.

Why Give a Written Test as a Preliminary
Eliminating Examination for Practical Jobs?
It May be Better and Cheaper to Give a Short
Practical Test of Key Skills Required in the Job
First, and, if Necessary, Give the Written Test
Last

Practical Civil Service Examinations

By HAROLD LEVINE
New York, N. Y.

THE written test has not been constructed which can measure adequately the skill of a craftsman at his trade. Yet in civil service examinations for a skilled job, a written test is generally administered as a first eliminating step. Those who survive are permitted to take a practical test which is a miniature replica of the job itself, and which is conceded to be at present the only one capable of measuring accurately the skills acquired in the plying of a trade.

There is no assurance, however, that by the first step in this eliminative process, the best mechanics are not themselves eliminated. In fact, one may suspect that the cream of the crop are those who have had least opportunity for academic schooling, and consequently are at a loss in written examinations, even the most simple. This is not to maintain that the written tests are academic and far removed from the duties of the position for which the examination is being held. The trouble is that linguistic facility is inherent in a written test. Only recently, a candidate for the job of Cement Mason in New York City wrote on his examination paper as he withdrew from the test, "I work with my hands, not with my mouth."

Why Written Tests for Practical Jobs?

WHY, therefore, in view of the almost universal recognition of the invalidity of a written paper as a measure of ability to perform at a skilled trade is a written examination given at all? The answer to this has already been intimated in the opening paragraph which mentioned the eliminating feature of the written test. Due to the relatively costly processes in administering a performance test, it

has been considered advisable to reduce to a minimum the number of candidates qualified to take this practical examination. This cost is due to the machines involved, the materials needed, and, most important, to the small number that can be tested per examiner per day. These difficulties have sanctioned use of a testing device which is manifestly not a true testing tool at all.

Were it possible to reduce this overhead appreciably, the basis for the use of the written test for skilled jobs would be removed. The phase of overhead lending itself most readily to paring is the length of time needed to test each candidate, thus increasing the number capable of examination by an examiner in a given period. It is this aspect of the testing technique which now offers promise.

Each Job Has Few Key Skills

MOST manual jobs in skilled trades require a certain finite number of specific essential skills without which a mechanic cannot succeed at a particular line of endeavor. These essential skills can be tested for much more quickly than can the entire process. Thus, a calculating machine operator must be able to add with reasonable facility. Hence one skill which can be tested for is the ability to obtain on the machine the sum of a column of figures. An examiner with a knowledge of the calculating machine operations can tell at a glance if the operator is skilled or not. In a space of a few minutes a candidate can be marked qualified or not qualified to take the more complete practical test. This latter is the more thorough and conclusive test given at present to those successful in passing a written examination.

Preliminary Key Skill Tests Advocated

IF, THEREFORE, an essential-skill test were administered as a first eliminating device there would be no danger of preventing any really competent and qualified craftsmen from competing in the complete practical examination. The basic assumption underlying the use of an essential-skill is that a good craftsman would certainly possess it and undoubtedly prove it. As a corollary is the less important fact (from the aspect of the establishment of the most qualified list) that those less skillful would probably not possess it and, hence, time would not be wasted on them in a longer practical test.

It must be carefully stressed that a short essential-skill practical test is not a substitute for the all-inclusive practical test as administered in civil service jurisdictions. It does, however, take the place of the written test. Both the essential-skill and the written serve the same purpose: to reduce the number of candidates to be tested further; but the one would look and be in line with the job, the other is at best a poor imitation.

The problem, therefore, resolves itself into two parts: (1) What are the essential-skills of any particular trade? (2) What would it cost to administer an essential skill test?

Both aspects require further research to determine the exact nature of their answers, but in general these observations may be made: 1. Every trade is capable of analysis into the basic elements which in combination form the complexity labeled "skilled trade". In some instances these elements are simpler to determine and easier to set up in a testing pattern, but the difference is one of degree. 2. The cost of the essential-skill test and the time involved would be much smaller than the cost and time for an all-inclusive practical test. The exact figures would vary from trade to trade. 3. From the standpoint of efficient civil service practice, the questions of time and cost are secondary, once these have been reduced appreciably, and are of the same order as the time and cost for written examinations.

Examination for Accompanist

THE writer was involved in an examination for Accompanist for Station WNYC, the municipal broadcasting station for New York City. Some 323 applicants filed applications for this job, and 260 took the written test which was given first. The rating of the hundredth candidate in the order of comparative scores was considered the pass mark, and all those achieving this mark or higher were eligible for the practical test.

As an inclusive test for accompanying involving instrumental ensemble playing, vocal accompaniment, the mastery of various techniques as transposing, improvising, and the accompanying of both classical and popular compositions, the adequate examining of which required at least a half hour per candidate, it was decided to hold an eliminating practical testing solo performance.

In both accompanying and solo performance certain essential skills are common; since accompanying requires the presence of subjects to be accompanied, it is considerably less costly to test an essential skill common to both through solo performance. Due to the fact that but a hundred candidates were eligible for this part, the solo test consisted of the playing of a prepared selection as well as three readings at sight of modern manuscript compositions, thus combining two essential skills.

Key Skill Test Described

EACH candidate performed for a maximum of eleven minutes. All the candidates were examined in seven evenings but if one essential skill alone had been tested, almost twice as many could have been examined in the same period. In the complex skill called accompanying, one essential element is the ability to read at sight the most difficult compositions. Allowing one minute for warmup, three minutes for performance and one minute for conference between examiners there is a total of five minutes devoted to the testing of candidate's ability as a sight reader. Actually, in the examination two minutes were allowed for warming up, five minutes were spent in playing the prepared selection, six minutes were devoted to sight reading, and a half minute was spent in discussion, for it was found that a candidate's ability as a sight reader was manifested after several bars of music had been performed.

Consequently, on the basis of the seven sessions devoted to the testing of 100 candidates, about 23 sessions would have sufficed for the 323 who were eligible to take the written test. If the minimum of sight-reading only had been given the 100 candidates, about 4 sessions would have been sufficient; for the entire group of 323, therefore, about 13 sessions would have been required to separate the proficient technicians from those less proficient without the intermediary step of a written elimination test.

It required 67 examiner-man-days to prepare, administer, and rate the written test for the 323 candidates (calculated on the basis of the 260 candidates who actually took the written test). A total of 15 monitor days was needed to administer the test. As a result of this written test, 100 candidates were qualified to take the first practical test in solo performance. Had this short practical test been given to all 323 candidates as a first test, a total of 26 examiner-man-days and 39 monitor-days would have been expended.

Evidently the time involved would have been of the same order whether the written test or the essential skill test had been given first.

Written Test Should Be Last

IN THE case of this particular examination, a written test would have had to be given, for the duties called for the arranging of musical programs for dramatization. The inclusion of this duty, however, goes beyond the skilled function of accompanying. (As a matter of fact, what was wanted for the position in question was not an accompanist but an all-round musician with technical facility in piano performance.) In any event, the written test would have been given to the twenty-five best technicians rather than a practical to the hundred best theoreticians as was actually done.

Moreover, even in this latter instance, it would have been preferable even from the financial aspect to hold this written examination after the practical test. Assuming that the time spent in the construction of the written test, and the preparation of the key would have been the same regardless of the size of the group taking the test, the number of examiner-man-days to rate 25 papers instead of 323 would have been reduced from 45 to about 4. The additional number of examiner-man-days required to hold the eliminating practical for the 223 candidates who were eliminated by the written is 9. Hence on this estimate alone, 32 more examiner-man-days were spent in administering as a first test an eliminating written examination, rather than a short performance test.

The conclusion to be drawn from this comparison may be stated as follows: In holding an examination for a job requiring manual dexterity, like Accompanist, it would not only be more valid to hold an eliminating essential-skill practical first, to be followed by an exhaustive practical, and finally if necessary by a written test to the survivors, but it would be less expensive than reversing this order to give the written test first.

Shortening Total Examination Time

It does not follow from these figures that administering an essential-skill practical test first instead of a written would reduce the cost of the examination. In the illustration discussed above a reduction would have been realized. Each skilled trade however would in turn require its own analysis. But, the total span of time between the beginning and end of an examination in a skilled trade would in general be considerably less if an essential-skill practical were given first than if a written test were administered first. The Accompanist examination covered a period of six months, four months of which were devoted to the written test. Without the written, or with a written for the successful candidates in the complete practical, two months would have been more than enough.

It should be noted in passing that the final list established for the position of Accompanist contained twenty-seven names, most of whom were remarkably fine technicians. But there is no way of knowing how much finer technicians may have been eliminated by the written test, and consequently never were examined on their technical mastery of piano playing. An analysis of the rank correlation between the scores on the written test and the results on the practical test in solo performance showed a value of 0.25 which has little predictive significance.

Objections to Short Test

The question might be raised that the public, and certainly the candidates would object to an in-out practical. They would claim that a fair opportunity was not given them to demonstrate their technique. But this imagined hue and cry cannot compare with that raised by candidates who are eliminated by the written and never are permitted to compete in the practical. Furthermore, public opinion as to the value of the written examination for practical jobs is certainly not favorable.

The only reason for the acceptance of this written device is the plea that funds are not available to cope with the vast number of applicants. Hitherto the written test has been considered a necessary evil. It is suggested here that this evil may now have become unnecessary. Incidentally, no unduly elaborate publicity campaign would be needed to educate the public to the proposed scheme.

Another possible argument against the use of the essential-skill practical is that if this elimination test covers any appreciable period, the later candidates could benefit by the process. This assumes that an unskilled applicant could become skilled in several days or weeks. The fallacy of this argument for any skilled job is obvious. However, even the slightest possibility of this can be eliminated, for different essential-skill practicals could be given at different sessions. There are certainly sufficient basic skills for most jobs to cover weeks of testing. If there are not, a minimum of these skills in combination might be attempted. For five essential skills, a combination of any two yields ten different varieties.

How to Make a Key Skill Test

IN ORDER to test the validity of this new procedure, it is necessary to determine the essential skills for each job, and to select those which correlate best with the final performance. It is true that most if not all the basic skills being essential to the complete performance should correlate highly with it. Statistically, however, it is conceivable that some correlate more highly than others. For the purpose of eliminating the poorer mechanics these are preferable for the essential-skill test.

In the New York City Civil Service Commission, there is available a body of data which enables the selection of these elements to be achieved. Most practical examination rating sheets are themselves divided into various elements making up the total process, each one of which is rated separately and all of them in various weighted combinations making up the final result. The grades on each of these elements, if a basic process is easily and quickly demonstrable, could be correlated with the final grades, and those showing the highest correlation would then each form the eliminative process determining those eligible for the lengthy complete practical. If the data do not lend itself to this analysis, future examinations might be framed with this in mind so that if the selection of these elements cannot be determined, or if it is found not feasible to introduce this procedure immediately, the basis for its introduction may be laid.

Dr. Millis' Views on Hours

National Labor Relations Board

Washington, D. C.

March 4, 1941

Editor,
Personnel Journal

Dear Sir:

In your article on "Social Changes 1941 and After" in the December issue of the Personnel Journal I am quoted as saying that "if necessary in the interests of defense, restrictions on hours of labor in America might be removed, so that workers could work 10 or 12 hours a day". This statement does not at all represent my views. In fact I am in accord with your subsequent remarks on the dangers of increasing working hours to the point where fatigue begins to cut down efficiency, and I regret that the misquotation of my views in a newspaper interview lead you to cite this misstatement.

On November 18, 1940, James Doherty of the Chicago Tribune interviewed me and began his signed statement with this paragraph:

Defense measures need not necessarily increase the working hours of the laboring man, but if an emergency requires a 10 or 12 hour day American men should be willing to do their part."

This supposed expression of my opinion so distressed me that I at once attempted to correct the impression by stating my true views to a reporter from the United Press. By this United Press reporter I was correctly quoted in a dispatch from Chicago, also on November 18, 1940, containing this quotation

"I am opposed to increasing the working week beyond 40 hours without careful consideration of three factors: working conditions, type of work, and type of employee."

In this same article the writer correctly expressed my views in this paragraph:

"He expressed the belief that a 50-hour work week would, in many cases, break output because of fatigue. Under ordinary circumstances, he said, 40 hours a week is long enough for any person to work."

I would consider it a great favor on your part if you could devise some opportunity to correct in the minds of your readers the impression left by your assumption that the Chicago Tribune article was an accurate presentation of my views.

Signed H. A. Millis, Chairman.

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We Should be Very Vigilant to Make Sure that
in Order to Defeat Nazism We Do Not Use Its
Methods and So By a Strange Paradox Prove
It Right.

German Labor Relations

BY CHARLES S. SLOCOMBE

Personnel Research Federation,
New York, N. Y.

As our defense program peaks up we are likely to have to deal with problems of widespread labor shortages, even perhaps leading to a system of labor priorities. Wages and hours will be difficult to fix.

The Germans have had to go furthest in regulating these matters, and a review of their methods may help us in indicating the regulations we should avoid.

Five years ago, when they started their armament program, some industries grew very fast, and their demand for labor increased tremendously. Production was slowed, there was competition between companies for labor, unregulated rises in wages and excessive labor turnover.

We are now witnessing the beginning of these troubles in this country.

Labor Turnover Increased

THE first thing the Germans did was to attempt to reduce labor turnover, particularly in the metal and building trades. This was done by having all hirings done through government labor exchanges. The control was later extended to cover all workers.

This system was not sufficient, so that the government required that companies report all their workers to the local labor exchange, with their qualifications. The government then arranged for the transfer of workers from jobs where their qualifications were not being fully used to other jobs where they would be, or from companies in non-essential industries to war industries.

Controlled Hiring through State Employment Offices

SOMETHING of this sort is now being done in England, and our war department is in favor of American employers getting used to hiring through state employment offices. Whether this means that they anticipate that, in the event of our getting into the war, we shall have to adopt a system of controlled hiring through state employment offices only is not known.

One of the differences between the situation here, and in Germany and England, is that they have had government labor exchanges, as they call them, for many years. Our state employment offices are of recent origin.

It is not known how much confidence employers in the war countries place in the efficiency and records of the government labor exchanges. But there is not evidence that American employers regard state employment offices too highly, as hiring sources. They might therefore resist regulations which might provide that they could not hire except through the local state employment office.

Some other steps were taken by Germany which are not applicable here. They used to have a restriction on the employment of women. This was abolished. They used to have restrictions on the employment of Jews. Employers were informed of the fact that there were competent Jews unemployed, and urged to hire them. Civilian prisoners, and prisoners of war, were put to work.

Age limits for employment were changed so that persons, both male and female from 15 to 70 years of age, have to work at the government's direction.

And lastly Germany organized the immigration of workers from occupied territories, such as Poland, Norway, Belgium and France. There are now over two million such non-Germans working in Germany.

Great Expansion of Job Training

ALL these vast changes in the labor market have inevitably involved a great expansion of job training. It has been found necessary to train and retrain the unemployed, and also to train the masses of workers who were transferred from one job to another, or who had never worked before.

Steps taken were: to require companies in the metal and building trades employing ten workers or more to take on a proportionate number of apprentices; to encourage or compel unemployed workers, or those who had changed their jobs during the depression, to attend classes to bring their skills up to their former levels; employers were requested to make labor audits to discover people capable of upgrading, and upgrade them; and finally companies are required to train a reasonable number of workers in semiskilled occupations, when they have the facilities, even though they themselves do not need this additional help.

Our own pattern of job and vocational training for defense industries is along the same lines, though so far the element of government compulsion is absent in America.

Trade Unions Abolished

BEFORE the Nazis took over control, Germany was the most highly unionized country in the world. There were innumerable unions, and also employers associations to deal with all the collective agreements about wages and working conditions that naturally developed. Furthermore there was an extensive development of the plan whereby, when an agreement has been reached by a majority of workers and employers in an industry, the terms of that agreement are forced on all.

This latter type of arrangement is now in use in England and Canada, and is very likely to spread to the United States, as or if unionism grows.

The Nazis immediately abolished labor unions, employers associations, all collective agreements, conciliation and arbitration and works councils.

Labor Trustees Appointed

IN PLACE of the previous institutions they appointed "labor trustees" who are responsible for all matters concerning industrial relations. These men have the sole right of decision, but generally consult with local experts and advisory committees. These men set up "collective rules," which replace the previous collective agreements governing labor relations.

Apparently until the war broke out, though these government labor trustees had wide powers, for the regulation of business and industry, they did not use them much, but sought agreement by the conference method.

When however the shortage of labor developed, and labor turnover and wages rose to an alarming extent, the system of "labor trustees" was used for the control of these matters.

A Ceiling Put on Wages

THE control of labor turnover, through insisting that all dismissals and hirings be reported to the government labor exchange, was not sufficient to prevent employers from bidding against each other for workers, so a ceiling or maximum was placed on wages. Employers were prohibited from paying more than the maximum set by the labor trustee.

Employers tried to get around this by offering special inducements, such as pensions, housing allowances, etc. The government thereupon absolutely prohibited employers from granting workers better conditions of employment, under severe penalties.

If the price-wage spiral in the United States continues to move up to a serious degree, there will unquestionably be pressure for some type of government control here, though it is certainly to be hoped that it will not be of the Nazi pattern.

Incidentally it must be remembered that the Nazis froze prices as well as wages,

so that the living standard of workers is now about what it was when Hitler took over the control of Germany.

Hours of Work Lengthened too Much

AS TO hours of work, there was a tendency at the beginning of the war to abolish all limitations and overtime pay. Goering said "He who wishes to work for the reconstruction of the Reich must not only work eight hours a day, but must work as he has never done before. No exceptions are allowed."

But the German Institute for Business Research pointed out that the "working day had already reached the maximum possible in the situation," for "employment was limited by difficulties in obtaining raw materials."

Actually it was found after three months of unregulated and lengthy hours of work, every day and Sundays and holidays, without overtime rates, that output was not increasing. So there was a return to the eight hour day, forty-eight hour week, overtime pay for extra hours and for work on Sundays and holidays, and a limit of two hours overtime per day.

Avoid Nazi Methods Here

THUS it seems that there are definite limits to what can be expected of workers, or to what they can do, no matter how much they are driven or how willing they are. As our labor shortage increases, and we try to get extra production through longer hours, we may perhaps be guided in our policies by this German experience.

There can be little question that industrial production problems in the United States are going to increase in seriousness, as we approach nearer and nearer to the brink of actual participation in the war. So we should be very vigilant to make sure that, in order to defeat Nazism, we do not use its methods, and so by a strange paradox prove it right.

WANTED

Back Numbers of the *Personnel Journal*.

Libraries and industrial companies have sent in orders for back numbers of the *Personnel Journal* for reference and to complete their files. The following numbers are out of print:

<i>Volume</i>	<i>Number</i>	<i>Month</i>	<i>Year</i>
6	10	April	1928
14	3, 4 and 5	Sept. Oct. & Nov.	1935
17	3	Sept.	1938

We should be obliged if those having copies of these numbers, which they no longer require, would return them to us. Full price will be paid for copies so sent in. They should be addressed to, Circulation Manager, *Personnel Journal*, 60 East 42nd Street, New York, N.Y.

A Survey Showed That 89% of Workers Liked Their Jobs, 11% Did Not. The Centers of Potential Disorder are Among This Latter Group Who Are Constantly Dissatisfied Because of Their Lack of Interest in the Job and a Feeling of Scorn for Everything Connected with It.

Employee Attitude Surveys

By HERBERT MOORE

Research Corporation
Chicago, Illinois

SURVEYS of employe attitudes and studies of employe morale have been conducted in many organizations. The time is ripe to take stock. What are the limitations of such studies and what are their values?

A summary of the principles that govern attitude studies and of the ends they hope to achieve should provide an estimate of the contribution they may make to organizational problems. The limitations that govern their operation indicate their possible field.

Limited Judgment on Specific Problems

THE first limitation that is placed on such studies is one of definition. Attitude studies are not concerned with general attitudes; they are designed to measure attitudes towards specific aspects of the work situation; these aspects are limited to those phases of the job or to those human contacts with which employees have intimate association and direct knowledge. They give the employe an opportunity to pass a limited judgment on specific phases of his relations with an organization.

The second limitation is one of comprehensiveness. To be valid, the results from such studies must be circumscribed by the factors that are operating as present company policies or practises; practises with which employes are familiar because of their experience in other companies, or practises which are shared by employes in adjoining companies form no part of the study of employe attitudes in any one company.

Judgments are of value when they are limited to practises in those particular social settings that organizational experiences provide. Practises that are shared by others but are not incorporated into company policy may be remote determinants of employe attitudes, but they are not so significant as constantly recurring factors in the everyday situation.

The third limitation is one of application. Attitude studies reveal disturbing situations; remedies for these conditions frequently cannot be found unless job specifications, promotional charts, transfer plans, and established training programs are accepted parts of personnel procedure.

How to Get Honest Answers

THE fourth limitation is that of identification. To get honest replies from employees the questionnaires must be completed anonymously and without the supervision or intervention of management. To get from attitude studies the results that are warranted, identification of employees is essential. The dilemma that this situation creates can only be solved when the attitude study is followed by a signed brief questionnaire. Without this identification, the individual benefits that may result from such studies are lost.

The values that may be gained from attitude studies may be grouped in two classes:

Specific Suggestions for Work-Place Improvements

IN SPITE of the fact that suggestion boxes are everywhere in evidence, the number of employees who make use of them is small and the types of suggestions that are acceptable are limited. The suggestions that are secured by means of attitude studies differ somewhat from the suggestion-box suggestions. The former are corrective, the latter are creative; the former are concerned with constructive developments and improvements, the latter are concerned with minor and sometimes petty irritations; the former represent the employees' imaginative flights, the latter express the employees' sensuous disturbances; the former are potent forces in enhancing the ego of the employee and contribute but little to morale, while the latter may be potent forces in destroying morale. The attitude study gives the employee an opportunity to offer specific suggestions on specific subjects, and frequently results in a high frequency of constructive suggestions that would otherwise be overlooked. However, for these suggestions to be effective there must be a committee to appraise them and a means of identifying those who give, and should receive a reward for, worthwhile ideas. Unless an evaluative committee and an identification system are sequels to the attitude study the results are largely lost.

Spotting Potential Explosion Centers

THE disturbing human forces in any organization are few in number, but those few are the key to morale. Unless they are known and the factors that are responsible for their attitude are disclosed and remedied, the few develop into the many, and mob action, which is usually camouflaged with catch slogans and easily-understood complaints, is inevitable. The common cure for such action is some form of superficial compromise; the roots out of which the potentialities for such action spring are still in the soil, and will burst into bloom again as soon as acceptable justification for their flowering can be found.

The cure for such cannot be found in temporary panaceas; ten cent raises are not appeasers of human desires. Cures can only be effective when causes of disturbances are unearthed; and these causes are only known when unrealized individual values, inhibited ambitions, and quelled aims are seen in the light of their significance for the individual employee whose hopes have been blighted and whose desires have been

ignored. But what are these individual sources of disappointment and discontent? The following factors were found in four studies that were completed recently:

- 1. "You can't get anywhere in this place."
- 2. "No one ever notices anything you do here."
- 3. "Who could be interested in the type of work I have to do?"

One of these comments was repeated in varied forms by every malcontent in the company; they strike at the heart of employe morale. They are not given by every worker in any company; they are only the complaints of the disappointed, the misplaced, the unwept, the unhonored and the unsung. And yet, they represent basic forces without a recognition of which explosion is just around the corner.

The Wail of the Young Worker

THE first one is commonly the wail of the younger worker. Four recently completed studies disclose between 20 and 40 per cent of those between 20 and 35 are disappointed with the progress they are making. A considerable percentage of these are capable of more responsible work; they are equal to and willing to pay the price of advancement, and will cooperate with the most severe program that makes advancement possible. But, no one knows their potentialities or their ambitions (that is their claim), and the result is disillusionment and despair. If employe attitude studies are to be effective, these disillusioned and despairing workers must be identified; a program in keeping with their capacities and their will to work must be mapped out for and with them, and an opportunity for the realization of their achievable ambitions must be on the horizon. The attitude study that fails to offer that solution fails to contribute to one of the most vital interests in young workers' lives.

Many Foremen Not Capable

THE second complaint is not limited to age; its frequency varies from department to department in the same plant. It is expressed in a number of forms, but chiefly in the form of complaints about the person in the immediate supervisory position. The results from one study are typical. When three groups of workers were asked to express their feelings about their foremen they replied as follows:

COMPLAINT	DEPARTMENT	
	A	C
He doesn't give me a fair chance	2	5
He doesn't notice my work	5	3
He doesn't pay enough for my work	2	3
He criticizes unjustly	1	1
He doesn't know what my job means	1	2
He is impatient to know my work	3	1
He does not give a square deal	4	1
He doesn't know what my job means	1	2

Men Will Not be Cogs

THE frequency with which employes complained about foreman B was not due to the fact that he criticized them or that he did not know his job; the five who complained that he did not give deserved credit also (with one exception) shared in the other complaints. They were disappointed in one value, and that disappoint-

ment was reflected in their judgment of every issue that related to the situation. Men are not, and will not be, cogs in a wheel; when they do a good job they want credit from their immediate representative of management. If that credit is given, extra effort is inevitable; when it is not given, carelessness and indifference are the natural sequel.

Attitude studies disclose these conditions; but disclosure is not remedy. The facts provide the raw data for a well-directed clinical interview between the foreman and the superintendent or personnel director. Unless the resourcefulness of the latter provides suggestions for overcoming disclosed weaknesses, and until a mutually agreed-upon corrective program results from the interview, the value of the study is lost. Employee attitude study should do more than disclose danger spots; it should show the how, the why, and the when of their remedy.

Malcontents Must be Identified

THE third issue is equally as crucial in the determination of morale as the other two. To be satisfied with his job a man must be interested in it and like it. The factors that make a job interesting cannot be gained by observation; why it is that some jobs are interesting to some workers and not to others has been a happy hunting ground for a quarter of a century. The extent to which jobs are found uninteresting and are disliked is the extent to which morale is low and attitude is poor.

Some indication of the frequency of this discontent may be gained from the results from four surveys. In reply to the question, if I had a chance and could select any job in this plant that I can and would like to do, I'd prefer:

The same
147

Other kind
19

The 89% who prefer their own job to any other are not likely to be among the malcontents; the centers of potential disorder are among the 11% who are constantly dissatisfied because of the lack of interest in the job, a feeling of superiority towards it, and a feeling of scorn for everything connected with it. If attitude studies are to be effective, these malcontents must be identified, provision for discovering the causes of the discontent must be made; their real work-interests must be known, and their transfer to or preparation for work for which they are qualified and in which they are interested must be effected.

Fuel for the Fire of Revolt

IN OTHER words, employee attitude surveys fail to achieve their possible ends unless they offer occupational guidance facilities to that small percentage of misplaced workers who will provide fuel for the fire of revolt as long as they are at the type of work which brings them only financial reward. A consciousness of achievement and a pride in work are only possible when work is in keeping with interests and abilities, and when it offers an occasional challenge to the ambitious.

Attitude studies, in spite of their limitations, are established tools of the modern research personnel worker; they provide human inventories, but their value is only realized when the corrections that they suggest are made effective under competent supervision.

Employee Ratings Have Long Been a Source of Argument among Personnel Men. They May be Used as a Means of Determining How Much to Pay an Employee or as a Means for Stimulating an Employee to Improve His Work.

Employee Improving Rating Method

By DICK CARLSON

Civil Aeronautics Administration,
Washington, D. C.

MEMORANDUM to C. A. A. personnel: Attached is a copy of a radio address given Monday night, March 10, 1941, by Mr. Dick Carlson, our Personnel Officer. Mr. Carlson spoke on a program entitled, "*Your Government and Mine*," which was broadcast from Station WINX, Washington, D. C.

Mr. Carlson's subject was Service Ratings—we perhaps are more familiar with the term "efficiency ratings"—and his point that such Ratings can and should be used as a means of improvement of performance and for personal growth, is very well taken and should be seriously considered by each and every one of us.

Aid to Friendly Discussion

IT is hoped that his remarks, which reflect the attitude of the Administration, will help establish the practice of friendly discussion between supervisors and employees whenever a situation arises which has any effect upon the employee's performance of his duties. If that is done, each person will have full knowledge of his or her standing and be intelligently informed of all the whys and wherefores which go into the determination of a Service Rating.—DONALD H. CONNOLLY, Administrator.

Service Ratings are scheduled to be completed on the 15th of next month (April, 1941) for thousands of employees of the Federal Government. This year Service Ratings have a particular significance, in view of revised regulations which will be put into effect as a result of the recent passage of the Ramspeck Act.

Contrasting viewpoints with regard to Service Ratings might be compared to

the opposite attitudes revealed in a story of two men from the East who experienced together their first sight of the Grand Canyon of Arizona. After seeing this chasm of colored rock, eight miles wide and a mile deep, each sent a postcard home. One man wrote: "Today I beheld the handwriting of God upon the face of the universe." The other man interpreted his experience in these words: "Today I stood on a spot where I could look down and spit a mile." These two men had looked at the same sight from the same rock at the same time, yet their interpretation of what they had seen was entirely different.

Secrecy Maintained

TO ILLUSTRATE these different viewpoints with reference to Service Ratings, let us look at two offices with extremely different practices. In one office, the supervisors fill out employee Service Ratings in great secrecy. The only thing that the employee ever finds out is the formal notice of his rating which he receives without explanation. The employees in this office never see their completed rating forms and they are uncertain as to what phases of their performance on the job or what other elements related to their work enter into determining the result of their ratings. Service Ratings are important to each employee because they become a part of his permanent personal history record but in this office they are looked upon as necessary red-tape required by law.

In another office, the supervisors have already handed out blank rating forms to the employees in their respective units with careful personal interpretation concerning the ratings to be completed on April 15. Each employee in this office has also been given a written statement of the duties of his job, and he has been requested to try to determine for himself the answer to three important questions about his daily work: *First*, what is a fair standard of performance on his job; *Second*, how does his actual day by day performance measure up to that desired standard; *Third*, what is the discrepancy between his actual performance, day by day throughout the year, and the standard which has been established. Upon the results of these three objectives his Service Rating for 1941 will be determined. There is free and open discussion between the supervisor and the employee with regard to these questions and their relationship to his service rating, *before any rating scores are determined*.

There is nothing new or startling in the field of human relations about this fundamental method. The same principle is used every day by track coaches, for example, in high schools and colleges throughout the land. Let's say that the record desired for running the mile is 6 minutes, in order to qualify for the college track team. One boy's time for running a mile is 9 minutes—he is three minutes short of qualifying for a place on the team.

The coach, whom we might liken to the supervisor in this instance, and the boy, whom we might liken to an employee, work on the problem together, studying ways and means of cutting his time to 6 minutes in order that he may qualify. He is

told frankly what the required standard is; what his actual running time is; and what improvement he will have to make, and he is assisted by his coach, who is an expert in training runners. It is all interesting fun and the athlete gives his whole-hearted cooperation without thought of compensation, except the glory of winning honor for his school and his team. On the track, in golf, in baseball and many other sports, we have long ago learned the fallacy of the old axiom that "He who does his best does well." Often our best is not well enough to qualify.

In conclusion, we have observed that Service Ratings may be looked upon as a necessary evil required once a year by law, or they can be used as a means of *improvement of performance and personal growth*.

In the first instance, the employee works in an atmosphere of monotony without interest in the improvement of his future performance. In the second instance, the employee is using the job at hand as a training ground for developing himself for major responsibilities.

Personal Growth

PERSONAL growth means the elimination of scattered effort and aimless drifting; it means the constructive use of energy which has heretofore been wasted. It is not possible to develop improved work habits without also improving the development of certain qualities essential to success in any field of endeavor. To grow on a job means to learn better methods, to think through problems and to put into action the results of constructive thinking. It can be made into a fascinating game; a game to improve today your records of yesterday, to improve this week your record of last week, and to improve this year the record of your best previous year.

An organized program essential to personal development and promotion might be stated in these simple principles:

- 1) Know definitely what your job is.
- (2) Set reasonably high standards of performance for each separate operation of that job.
- 3) Develop ways and means of bringing your actual performance up to the standard which you have set for yourself.

Finally, have clearly in mind the ultimate personal objective for which you are working and make current revisions of your plan for reaching that objective.

This discussion has merely touched upon two extreme viewpoints with reference to methods of making and using Service Ratings. The United States Council of Personnel Administration recently appointed a Committee on Service Ratings, under the Chairmanship of Mr. William Bowen, Director of Personnel, Railroad Retirement Board. This Committee has been giving special study to the problem and I assure you that there is a sincere desire upon the part of Directors of Personnel

in the Federal Government to make Service Ratings productive of more effective results for the employee, for the supervisor, and for your Government and mine.

Personnel Office Memorandum

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON, D. C.

March 21, 1941

TO: *Staff Officer, Service Directors, Regional Managers, Division, Section and Unit Chiefs*

FROM: *Personnel Officer*

SUBJECT: *Preparation and submission of Service Rating Forms*

Within a few days there will be released a Personnel Procedure on the subject of Annual Service Ratings. The proposed procedure introduces a plan which will provide:

- A A practice of having each employee appraise and initially evaluate his own performance.
- (B) An interchange of opinion between each employee and his immediate supervisor regarding the employee's actual performance as applied to desirable standards, *before* official ratings are determined.
- (C) A guide to employees and to the Administration with respect to improvement of performance standards.
- (D) A more uniform understanding of what constitutes a fair appraisal of performance as a basis for promotions, reassignments, demotions, layoffs, and separations.

Rating to Follow Discussion

FOLLOWING a discussion of desirable standards of performance as applied to the employee's actual performance and self-evaluation, a rating will be determined by the employee's immediate supervisor (the Rating Officer), subject to action by the Reviewing Officer (supervisor next in line of authority), and a Board of Review. Where discussion between employee and supervisor is not possible, the Service Rating Form should be prepared and forwarded by the employee to his immediate supervisor for the necessary consideration and adjustment.

Accomplishment of the purpose of this plan as set forth in the personnel procedure will require that careful consideration be given by supervisory personnel. Completed ratings on all employees should be received in this office on or before April 20. Copies of this procedure, together with the necessary Service Rating Forms, will be forwarded under separate cover for distribution to all employees under your jurisdiction at the earliest possible date.

Though Applying Specifically to the Philadelphia Area, This Paper is of Wide Value as Describing a Model Study, Such as Each Community Should Make

Clearing Labor Demand

By FRANK G. CONNOR

Pennsylvania State Employment Service,
Philadelphia, Pa.

MORE so now than ever before, employers, workers and the public are becoming aware that statements as to the demand for, and the supply of labor must be translated into terms of "kinds of workers" to be understandable. So when we say that there were more workers gainfully employed in Philadelphia for the six weeks before Christmas than at any time since the World War, our statement means little unless mention is made of the kinds of workers employed.

Present estimates show that 1,096,658 persons were employed in the Philadelphia metropolitan area as of January, 1941. In Philadelphia County between January 1940 and January 1941, employment increased from 741,491 to 840,104—in round figures, 100,000 in a year.

Nature of Analysis

IT is not my purpose at this time to reduce these totals to kinds of employment. It will be sufficient to depend upon the fact that 218 firms covered in a recent labor market survey reported 122,000 workers on their payrolls at present, and anticipate a demand for 51,000 additional workers before the end of the year, or an expected increase of approximately 40 percent.

My analysis will be confined to this segment of our working population in the belief that thereby the demand for, and the supply of workers in this group of industries will set forth what we may expect during the months to come.

Of the 51,000 additional workers needed by the 218 reporting employers, 22,000 will be needed before July. Inspection of the occupations specified shows that there

are causes for serious labor stringencies, both as to kinds of workers and quantity of workers. One firm now employing 100 workers needs 4,700 additional workers, of which 75 percent must be skilled in a particular occupation. It is significant that of the stated needs for 51,000 additional workers only 10 percent of the total demand comes from the construction field.

Job Specifications Difficult

THE situation is further aggravated by the job requirements as set forth by these employers. Citizenship affects 80 percent of the potential job openings, physical examination requirements affect half of these job openings, and sex differentiation calls for men in 85 percent of the openings. Occupations recording a need for one thousand or more were: Carpenters, Electricians, Instrument Makers, Bench Machinists, Machine Tool Operators, Sewing Machine Operators, Painters, Sheet Metal Workers, Ship Fitters, Welders, Production Workers.

Other occupations requiring hundreds of additional workers are: Boiler Makers, Riveters, Brick Layers, Cementers, Draftsmen, Pattern Makers, Plumbers, Pipe Fitters.

These estimates, although given to you in general terms, are based upon production schedules as reported by the 218 firms included in the survey.

At the conclusion of this brief summary of the demand for workers, the natural question is. Where may we look to supply this demand, and to what extent can it be met, not only now but at the time it first becomes very acute—in the spring and the summer?

The survey on which I have based my statements as to demand is less comprehensive as to the supply of workers available in this area, because it is based almost entirely from data derived from Employment Service files in the Philadelphia area. At the outset, let us keep in mind that this data, and any data on the labor supply necessarily lacks comprehensiveness because of a number of factors.

Transfers Difficult

AMONG these factors, the most important is the ability of skilled and semi-skilled workers to transfer from one industry where the demand is decreasing to another industry where the demand is increasing. For example, the demand for hosiery workers has been for some time on the decline; by retraining, many of these workers should be able to put their machine sense and manual dexterity to other uses. However, to what extent such transfers can be affected depends not merely upon the demand, but upon industry's recognition of related skills, as well as facilities for retraining provided by the schools.

Training for the purpose of up-grading skilled workers now presently employed, and training of unskilled workers to replace them in occupations, plus the substitution of female workers in jobs now calling for men, are other ways of alleviating

stringencies. This survey discovered a sufficient supply of women workers, with the exception of power machine operators. Other women workers without preliminary training can turn to factory labor and certain production operations for which they can acquire the little skill needed in a short period of in-service training. The greatest supply of women workers will continue to occur among home service, hotel, restaurant and institutional groups, and undoubtedly to some extent in the clerical and stenographic classes.

A source of labor supply seems to be available in the surrounding counties, but upon more careful inspection this is found not to be so. In Delaware County, because of defense expansion at the shipyard and work being done at Eddystone, the shortage of man-power resources will approach the 10,000 mark before the end of the year 1941. In Chester County there appears to be nearly sufficient man-power resources to meet the anticipated demand. In that portion of Montgomery County south of Pottstown there appears to be a potential oversupply of 8,000 men.

Men from other Countries

HOWEVER, many of these men may be absorbed by the new Brewster Aeronautical Corporation development in Hatboro, and as for Bucks County—even with utilization of Montgomery County's labor supply, there will be a labor shortage approaching 10,000 workers.

The findings of the survey are, to a large extent, borne out by the placement activities of the Employment Service. In the files of the Service in Philadelphia there are registered at present about 74,000 workers of whom 48,000 are men. Another 10,000 of whom 3,000 are male, between the ages of sixteen and twenty-one, are registered with the Junior Employment Service in the city. The total number of persons available through the facilities of the Service is 84,000—53,000 of whom are men, and 31,000 women. According to the best available estimates of total resident unemployment in the city, there are 70,000 men and 50,000 women, or a total of 120,000, compared to the estimated total of 84,000 available to the Employment Service. These totals are interesting in comparison with the demand for 51,000 workers reported by the survey and the overall employment demand estimated at a minimum of 95,000 or 70,000 men and 25,000 women.

Trying to Stabilize Labor Market

ALTHOUGH the total of active registrations in the Employment Service files is the residue, after careful purging in order that the files may be as reliable as possible, we cannot say that every one of these persons is qualified to meet the many different employment requirements of a rapidly-changing labor market. In spite of the fact that the Central Placement Office in Philadelphia has been filling an increasing number of employer requests during recent months, the Employment Service in Philadelphia controls by no means the majority of hirings in this area.

Whether its usefulness in the present emergency will increase or decrease depends not solely upon its own efficiency and resources, but chiefly upon the recognition it receives from employers and workers as a medium of exchange, whose primary purpose is to stabilize the labor market for the good of the community.

Although I have confined my remarks so far to the findings of the survey reporting 218-firms, a few general figures will, I believe, help further to emphasize the findings of the survey. An estimate was made of the needs in other manufacturing groups. Those not covered by unemployment compensation employ approximately 700,000 persons at present. Estimating that the trend in 1941 will increase at the rate of only half of one-percent per month throughout the year, there will be a need for at least 45,000 workers in addition to the 51,000 to be needed by the 218-firms. These two figures combined make the total of 95,000 workers I just mentioned as the minimum total demand for the year 1941. This estimate of total demand does not take into account the need for normal replacement and turnover, nor the drain upon the local labor supply which will be made by firms in outlying areas.

A conclusion we may draw from the results of the survey is, that 18 or the 218-firms report a total expected employment of 39,000. This will account for 75 percent of the total defense expansion in Philadelphia anticipated during the year. If the demand of these 18-firms can be met out of available labor supply with a reasonable degree of satisfaction, it is obvious that the most acute problems of labor supply will have been solved.

Don't Be Overoptimistic

WE CANNOT contemplate the apparent shortages that are revealed in this survey of a small section of our local labor market without being forced to the conclusion that elsewhere similar stringencies exist. Those employers who think that beyond the confines of the immediate market there can be found those skilled workers that they need are not only overly optimistic but also are avoiding the managerial implications of the situation.

The British have found that through the process of "dilution," through the mechanism of job breakdown, and more especially by a careful job analysis of the work to be done is there a hope of meeting the emergency with the workers at hand. The alternative to the full occupational use of home talent is the importation of workers regardless of the need for them in the locality they may be induced to leave. Usually, the only workers secured by this means are those who are least qualified or of little importance to competing markets, but no employer who raids another's territory has a moral right to complain when his workers are stolen. Rather through up-grading and retraining, and the introduction of the products of our Defense Training Program at the bottom will the problem be met.

Paper presented at a Conference on "Mobilizing Philadelphia's Industrial Production and Man Power for National Defense" sponsored by the Philadelphia Chamber of Commerce.

The Results of a Survey Made of the Promotion Practices, in Regard to Seniority, Record, Examinations, etc. in Forty-four Large Cities.

Promotion Practices of Public Agencies

BY NORMAN J. POWELL AND SHERMAN
TINKELMAN

Civil Service Commission
New York, N. Y.

A well conceived promotion plan makes three significant contributions to good personnel administration.

It furnishes efficient personnel for important administrative and supervisory posts. If the promotion procedure is technically adequate and fairly administered, those individuals will be promoted who are most capable of performing the duties of the higher grade positions.

Ambition Encouraged

IT DEVELOPS morale and efficiency throughout the entire governmental service. Subordinate employees nourish the ambition of rising to positions of greater prestige and responsibility. Of all non-financial incentives, opportunity for promotion is perhaps the most compelling, especially among the younger employees. Consequently, a promotion scheme which is defective in the sense that it impairs the force of promotion as a source of motivation is likely to prove extremely damaging to employee morale.

It facilitates the recruitment of desirable personnel into the public service. The chief aim of the Commission of Inquiry on Public Service Personnel was to discover the reasons for our nation-wide failure to attract sufficient men and women of the highest calibre into the governmental service and to devise a constructive program for correcting this deficiency. Establishment of a career service is the solution recommended by the Commission.

Public employment must be made a "worthwhile life work, with entrance to the service open and attractive to young men and women of capacity and character,

and with opportunity of advancement through service and growth to posts of distinction and honor . . . There can be no career service in government, or anywhere else, without promotion." (Commission of Inquiry on Public Service Personnel: *Better Government Personnel*. McGraw-Hill, 1935, pages 3 and 45.)

While there is general agreement that these are desirable objectives, the precise means to be employed for attaining these ends is a less obvious matter. "Promotion" is a broad term including, in actual practice, many different, conflicting procedures. Because of basic differences in principle, these practices operate with varying effects, more or less in conformity with the generally accepted purposes of promotion.

Survey of Practices Made

IN ORDER to secure some indication of the degree to which various procedures and principles have found acceptance among public personnel agencies, a survey has been made of current promotion practice. A questionnaire inquiring into promotion procedures was mailed to 88 city, county, and state personnel agencies in jurisdictions over 100,000 in population. The form requested information concerning practices in uniformed and in non-uniformed forces with reference to the use of competitive examinations for making promotions, the factors considered in promotion examinations, and the method of weighting these factors.

Returns have been received from 44 agencies, half of those canvassed. It appears probable that the personnel agencies which responded to the questionnaire tend to be those believing that they possess a superior program. To some extent, therefore, the data may be biased in that direction. That is, they may be interpreted as presenting more nearly an optimum rather than an average picture of promotion practice.

Two of the agencies reported that they do not make promotions on the basis of competitive examinations. Of the remaining 42 agencies, competitive examinations are employed in all promotion examinations by 70% and in a large proportion of promotion examinations by another 20%.

Uniformed and Non-uniformed Forces

FOUR agencies, it has been found, have jurisdiction only over uniformed forces. Five have jurisdiction only over non-uniformed forces. In about 60% of the agencies having jurisdiction over both, practice in one service is exactly the same as practice in the other. In the remaining 40%, the differences are generally minor in character. When data for uniformed and non-uniformed forces are analyzed, the distributions were found to be generally similar. The data for the two service have therefore been combined into one general distribution from which overlapping has been eliminated.

In only one respect, length of service required for eligibility for promotion, are

important differences between the two services found. Of the 32 agencies having jurisdiction over non-uniformed services and supplying this information, 44% require a minimum period of $\frac{1}{2}$ year, 44% require a minimum of 1 year, and 12% require from $1\frac{1}{2}$ to 5 years. Of the 32 agencies having jurisdiction over uniformed forces and supplying this information, 25% require $\frac{1}{2}$ year, 34% require 1 year, and 41% require periods from $1\frac{1}{2}$ to 5 years. In many cases, three years are required for the first promotion and $\frac{1}{2}$ year for every promotion thereafter.

Some jurisdictions establish markedly different requirements for the two services. One jurisdiction, for example, sets six months as the minimum for the first promotion in the non-uniformed service, but 5 years as the minimum for the first promotion in the police department. The tendency to require longer periods of service before promotion in the uniformed services may be due to the feeling that these services involve greater civic responsibilities and, hence, that high positions in these services must be filled with greater caution.

Long Service before Promotion Possible

THE outstanding feature of this survey of eligibility requirements is the long period of service required for promotion. In certain cases, employees must serve as long as 5 years in a position before they can hope for advancement. This would seem to make promotion in these instances excessively slow.

Where promotion is based on competitive examination, all of the agencies surveyed stated that they take into consideration either record, seniority, or a combination of the two. Five do not consider record at all, however, and four do not employ any measure of seniority.

The importance with which seniority is viewed by the 44 agencies which have been canvassed varies considerably. Many different procedures are employed for including the employee's length of service in the total picture of his qualifications for promotion, resulting in varying degrees of emphasis upon the seniority factor. In fact, no more than two agencies employ exactly the same scheme.

Due to Seniority Weighting

IN GENERAL terms, one-fourth of the agencies do not assign a definite weight to seniority but add an unweighted increment, determined by the number of years of service, to the final examination score. For example, one agency adds one point a year for each year of service. Another employs the same scheme, but establishes a maximum of 20 points to be gained by seniority. These two procedures give considerable advantage to employees who have been in the service for a long period of time. A third procedure, on the other hand, is to add $\frac{1}{10}$ of a point for each of the first ten years of experience and 20 of a point for each of the next ten years, making a maximum of $1\frac{1}{2}$ points. A procedure of this type, giving much less advantage

to the older employees, demands that other qualifications be demonstrated for promotion.

About one-half of the agencies add the seniority increment to a base of 70% or 75% in order to obtain a seniority score, which is then weighted and combined with the other test components. For example, one agency adds 5 points to a base of 70 for each of the first five years of service, making a maximum of 95. Another adds 2 points to 75 for each of the first 5 years and 1 point for each of the next 15 years, but deducts 1 point for each year beyond the twentieth. A third agency adds, to a base of 70, 3 points for the first year, 3 for the second, 4 for the third, 4 for the fourth, 3 for the fifth, 2 for the sixth, and $\frac{1}{2}$ for each year beyond the sixth until a total of 100% is reached. It is apparent that uniformity is lacking.

The remaining quarter of the group weight seniority in some other way, without adding to any base. For example, one agency gives a score of 33 $\frac{1}{3}$ % to those in service one year, 66 $\frac{2}{3}$ % to those in service two years, and 100% to those who have been in service three years. Another method employed is to award 20% for each of the first five years of service. These two procedures make no pretense of favoring employees who have been in the service for long periods of time. They recognize that experience on the job is a factor to be considered, but evidently assume that the advantages accruing from mere length of service are achieved within a few years and that, therefore, no additional benefits are to be gained by service beyond that point.

Where seniority is assigned a definite weight, the weight ranges, on the basis of 10, from $\frac{1}{2}$ to 5. About 80% of the agencies studied assign to seniority a weight of 1 out of 10. Some of the agencies weight seniority heavily, but current practice, on the whole, indicates that seniority is viewed as a relatively minor consideration.

Performance Record also Important

WHEN record is considered as a factor in making promotions, its weight has been found to range from $\frac{1}{2}$ to 5, on the basis of 10. Most frequently, record is assigned a weight of 2, about 31% of the agencies following this practice. About 16% of the agencies give record a weight of 1 and about 13% give it a weight of 5. Other weights are employed relatively less frequently. Record, therefore, is generally considered more significant a factor than seniority.

In only 22% of the personnel agencies weighting record is the mark for record an average of all the ratings received by the candidate during the period which establishes his eligibility. Another 6% of the agencies employ a general survey. To illustrate, one agency makes a survey of the employee's rating to determine whether his record is improving, is static, or is going downhill. The direction that the service rating is taking determines the amount of service rating credit.

The remaining 72% consider only the most recent service of the applicant, up to two years preceding the promotion test. The exact period considered is not

stated by many of these agencies. Where it is mentioned, it is in most cases either six months or a year.

About 25% of the agencies considering record and answering the question stated that the weight given to seniority varies with the position. About 52% stated that the weight given to record varies with the position. Thus, seniority is a more standardized factor in promotion, tending to receive the same weight regardless of the examination. Rules concerning record are less rigid, but even here almost half of the jurisdictions considered assign exactly the same degree of emphasis to record in every promotion test, regardless of the position.

Competitive Examinations

THE chief outcome of this survey of promotion procedures has been to establish the fact that practice differs widely. The only generally accepted practice is to employ competitive examinations for making promotions, and to employ at least one of the factors of seniority and record in selecting candidates. Otherwise, there are no typical data.

Some personnel agencies allow rapid promotion, while others require as many as five years of service in a position, before advancement is possible. Some agencies weight seniority heavily, while some weight record heavily. In certain cases, the method of assigning credit for seniority favors the employees who have been in the service for a long time. In others, no advantage is given to the older employees. One agency goes so far as to penalize employees who have been in the service twenty years without promotion. Some personnel agencies, when making promotions, take all of an employee's service into consideration. Others consider only the most recent service. Some jurisdictions assign varying weights to seniority and record, depending upon the position, while others maintain the same weights for all positions.

Inherited Practices

THE essential significance of these findings lies in the fact that procedural differences are based upon important underlying differences in principle. Usually, current practice is accepted without question. It is merely something that has been inherited from previous administrations or borrowed from others because it appears to be satisfactory. What is not generally realized is that an administrative practice is inescapably based upon a number of fundamental assumptions. Matters are handled in one way rather than another only because that method is assumed, for a number of reasons, to be the best solution to the problem.

Consider, for example, the widespread practice of taking into account only an employee's latest service in considering his qualifications for promotion. This procedure can be justified only upon a number of basic premises. To ignore all but

an employee's most recent record and to give that record a preassigned weight assumes that:

1. The quality of performance at one level of work is predictive of performance at a higher level.
2. Only present capacity, as measured by recent performance, is predictive.
3. The preassigned weight achieves maximum prediction.
4. Present capacity is measured validly by performance during the specific time period set—6 months, 1 year, or 2 years.
5. Present capacity is measured accurately and reliably by the rating method employed.
6. It is equally difficult in all positions to achieve a given degree of performance within the established pre-promotion period.
7. Pre-promotion performance is equally predictive for all positions.
8. Awareness that all service counts is not a significant stimulus to employee day-by-day performance.
9. The unpromoted as well as the promoted are reasonably were satisfied with the promotion process, thus fostering employee morale.
10. Atypical service (due to illness, worry, etc.) is less likely unduly to color pre-promotion performance than performance during the entire period of service.

Unverified Assumptions

THESE assumptions are almost wholly unverified. It is only recently that problems in the field of public personnel administration have been subjected to quantitative and experimental attack, and this movement is so new that the body of established and proven fact, as distinct from unverified assumption, is as yet extremely limited. Unless the soundness of the diverse assumptions underlying personnel practices is established, there can be no scientific personnel administration.

Promotion practices are especially in need of careful evaluation. The variations in current promotion procedures are enormous. The different procedures employed all involve important assumptions, many of them contradictory. If procedural reforms are to be expedited and if personnel administration is to be spared a long period of fruitless, trial-and-error search for optimum methodology, the premises and assumptions involved in current promotion practices must be subjected to the test of experimental verification.

A Definite Organization Plan Even in a Small Company Provides for an Understanding of the Lines of Authority and Responsibility and Aids in the Smooth Operation of the Concern.

Organization Lines

By JAMES J. JACKSON

Woodbury, N. J.

THE degree of organization in an industrial concern may vary from that of a military unit to that of a mob assembled for some act of violence.

During the period of our participation in World War I, we often saw military organizations on the march. Each unit of the organization was made up of practically the same number of men, and the form of the group was fixed by rigid regulations. Every soldier had a definite position in relation to the men around him. His duties were definitely fixed. The rank and authority of each member of the organization were indicated by his position in the group and by his insignia. There could be no doubt as to the authority and responsibility of each man.

Mob in Contrast

IN CONTRAST with the military organization, we may cite the mob which assembles for some act of violence. There is no form to the group, and the individuals act more or less independently of each other. No one has any authority over the other, and, as is sometimes demonstrated when the offence is serious enough to be taken into the courts, it is very difficult to fix the responsibility for the mob action.

The success and length of life of the industrial concern depends largely, if not primarily, on the degree of organization. The truth of this statement is emphasized when difficult business conditions are encountered.

The executive in charge of a group of employees can simplify his own problems and increase the effectiveness of his department by adopting an organization plan carefully fitted to the conditions, and by training his employees to respect the lines of authority and responsibility thus established.

Plans of Organization

THE purpose and nature of business organizations vary to such an extent that it is to be expected that the forms of organization will differ greatly. No definite rules can be laid down for organization lines. As a matter of fact, even in the best organized concerns there may be found two or even more types of organization in different parts of the business.

In the military type of organization each worker is responsible to a certain foreman, and that foreman is ordinarily the only one to exercise any authority over the worker. The foreman has the same relationship to the general foreman as the worker has to the foreman. In like manner, each member of the organization is directly responsible to one man and is supposed to receive orders from him only. Actually, the affairs of military organizations and business concerns are not conducted in such a way that there are no exceptions to the rule.

In the functional type of organization there may be two or more bosses in charge of the same group of men. Thus, in addition to the production foreman, there may be an inspector and a repair boss. Each supervisor has a definite phase of the work for which he is responsible and over which he has authority.

In some companies the committee plan of organization is used to a large extent. That is, most of the questions as to how the business is to be run are settled by a committee composed of everybody concerned with the particular question.

It is impossible to recommend a plan of organization that will fit every situation or condition. The plan will vary according to the size of the organization, the kind of product, the personnel available, and numerous other factors. There are, however, some suggestions that can be made and which may be of assistance to the executive in shaping up his organization plan and dealing with his workers.

Organization Lines Drawn with Care

EACH executive should set up a rather definite organization plan which is fitted to the conditions existing in his department. The type of work done, the size of the organization, and the personnel available are the main factors to be considered in drawing up an organization and in determining the lines of authority and responsibility for handling the operations.

The type of work done has an important bearing on the set-up of the organization. When the operation can be performed by unskilled labor, it is usually most satisfactory to have only sufficient supervision to be able to observe the actions of each man and to see that he is keeping at work. Additional supervision would not increase the amount of work done, and it would needlessly increase the costs of the operation. On the other hand, if the work requires highly skilled labor and technical questions or matters requiring decisions are likely to arise, it is highly desirable that the number of supervisors be increased to the point that there is a minimum of delay in the work of the operators.

Loss of time on the part of the workers until they can obtain a decision is expensive from both the cost and production points of view. There is a point at which a balance may be struck between too little supervision to keep the men at work and too much supervision for the amount of productive work.

Size of Organization

THE size of the organization is, of course, an important factor in setting up lines of authority and responsibility. A small group of men may be supervised by one boss. When larger numbers of workers are employed, the number of bosses must be increased to the point at which each supervisor has charge of only the number of men that he can direct properly. Here it is necessary to divide the force into groups and have a supervisor assigned to each group of workers. Should the number of groups be large, it may be necessary to have the total number of groups separated into sections of such size that a higher ranking supervisor can have general supervision over the work of the bosses of the groups in his section. The organization that has just been described is known as the military organization.

Likened to a Pyramid

IT MAY be likened to a pyramid of which the top is the department supervisor. He has direct authority over the next layer of supervisors and they are responsible to him. The second layer, in turn, has authority over the third, and the members are responsible to the first layer. The third layer, the supervisors directly in charge of the workers, have authority over the workers and are responsible to the supervisor of their section. As the base of the pyramid, the worker, is increased or decreased, the structure above may be changed to keep the whole in the proper proportion for correct supervision.

The way in which a department is organized will depend to a large extent on the personnel available for supervision. The perfect supervisor for any work would be difficult to find because his qualifications would be so numerous that mere humans could not come up to the specifications. There being no men without faults of some kind, it is necessary to fall back on the best man available for each of the positions to be filled. To list the desirable qualifications of a supervisor would be a large task, and the requirements vary somewhat for each position to be filled. Only a few of the more important qualifications can be discussed here.

It is not an easy matter to develop a smooth-working, effective organization. There are matters of personnel and personalities to be considered. Many advantages and disadvantages must be weighed in the balance before a decision can be made. A happy medium must be struck somewhere between the rigid military type of organization and the undisciplined mob rule. The best judgment of the executive should be used in order that an organization is set up in such a way that responsibilities are definitely fixed and yet the work will be carried on in case of the absence

of one of the members. Much of the success of the executive depends on his ability to set up an organization in which each individual understands exactly what he is to do and his relationship to the other members of the organization.

Organization Lines Should Be Respected

IN ALL contacts in an organization it is necessary that a member deal with the proper authority, if that organization is to be smooth-working and effective. Each person is placed in an organization because of some ability that he possesses. He has supervision over certain workers in regard to certain matters. It is only fair to him and the best results can be obtained by dealing directly with the man who has the authority. To do otherwise is to gain the ill will of the man responsible, and he will be justified in his attitude.

There are times, of course, when it is necessary to take some action without consulting the proper authority. The right man may be absent, or some emergency may arise in which minutes count heavily. In such cases, it may be desirable to take the matter up with another person, or, if it is an emergency, direct action may be taken without consulting others. No concern should have such rigid organization lines that the necessary work would be stopped or an emergency not properly handled because of the absence of the proper authority.

Although there are times when organization lines must be temporarily ignored, such occurrences should be held down to the lowest possible number. There is nothing that destroys the morale of a supervisor and his workers much more than interference from another supervisor or a higher authority. And, when it is necessary to ignore organization lines, there should be a justifiable reason for such action that is clear to the men involved. Furthermore, great care should be taken to see that the whole matter is properly explained to the man whose authority was ignored, as soon as he returns. In this way, he is given the opportunity to understand the situation, and he is shown the respect due him.

Responsibility Works Both Ways

IN THE discussion thus far the matter of responsibility has been treated on the basis that the worker is responsible to the supervisor and the supervisor is responsible to the next higher authority. But, many very successful concerns work on the basis that the higher executives have a responsibility to the supervisor, and the supervisor, in turn, has a responsibility to the worker. True, the worker gets paid for the time that he works, but he also wants to be treated with fairness and respect and to be given the satisfaction which comes from a good job accomplished.

When a man works for money alone, that work becomes drudgery. But, when he knows that his efforts will be appreciated, his work will no longer be drudgery for he will derive a certain amount of pleasure from doing it. No doubt the good will of the employees has a great deal to do with the success of those concerns that

recognize their responsibility to the workers. Surely, if the relationship is to be satisfactory to both, there is the necessity of fair-dealing, respect, and appreciation between supervisor and worker.

Proper Source of Instructions

THE definition of organization lines makes it easier for the individuals in an organization to understand their positions relative to the other members. With definite lines of authority and responsibility, there should be no doubt in the minds of employees as to the proper source of their instructions and as to the person to whom they are responsible.

This knowledge alone should solve many of the problems of the management of an enterprise. It is an assurance that orders will be carried out and that contradictory orders will not be issued. Under such conditions there is less likelihood of overlapping duties and of work being neglected because of misunderstandings as to the responsibility for them.

There should be a definite understanding as to the position of each employee in an organization. The man who attempts to give instructions or to make decisions when his status has not been defined is working under a handicap. It is not known that he has the required authority, nor is it known that he will accept responsibility. On the other hand, when his standing in the organization has been stated definitely, he is recognized as to his authority and responsibility, and his position is respected.

Talebearing Is "Out"

NO MATTER how carefully an organization is set up and regardless of how well the lines of authority and responsibility are respected, there is still a possibility that the organization will not function properly. To set up an organization is not a cure for all evils, but it is merely a guide in the correction of many of those that exist where lines of authority and responsibility are not properly recognized. It does not make men into machines and thereby do away with human relations between those who are on the same level in the organization. In fact, if a supervisor or a worker could deal only with a higher authority, he would not settle differences of opinion except by talebearing.

The competent supervisor neither needs talebearers to keep him informed as to what is going on in his department nor wants to spend his time "separating the wheat from the chaff" of stories that are carried to him. He should be able to devote his efforts to the improvement of conditions and performance rather than to investigations of quarrels or differences of opinions among his men.

Subordination of Selfishness

ONE of the most important, and sometimes most difficult, tasks of the supervisor is to train his men to deal amiably with each other and to subordinate their own interests to the good of the organization. It is highly desirable that men be

trained to appeal to their supervisor only when the matter is of sufficient importance, or when they cannot reach an agreement among themselves.

Most men try to be fair in their dealings with associates, and they will, under normal conditions, gladly agree to what is considered the best for all concerned. There are, however, men who want everything decided in a way favorable to them. Here is a problem that is more difficult to solve. Perhaps, the best solution, when it is possible, is to place the non-cooperator in a position in which he does not come in contact to any great extent with other members of the organization. This is not always a convenient thing to do, but it does help when the man's technical knowledge is such that he is valuable to the employers.

There are numerous advantages to having men so trained that they are able to settle minor problems among themselves. The most important of these are that they learn cooperation and the supervisor has time to pursue his other duties. By learning to cooperate, the men also learn to analyze any situation from each other's point of view and to decide what is the best solution for all concerned. They learn the game of "give and take" with the result that the employer gains. When minor problems are settled by his employees, the supervisor is relieved of much of the detail with the result that he has time to devote to major problems. Settling petty disagreements becomes a thing of the past, and he can use his energy in the study of improved methods and procedures.

The Benefits of Organization

THE benefits to be derived from organization are those obtained in the military unit insofar as they are applicable to the industrial. Thus, each person in an organization has a rather definite position in relation to the other members; each supervisor has a recognized authority over other men; and each man is responsible to a designated supervisor. This is in contrast to the mob in which there is no organization, no authority, and no responsibility.

The concern as a whole benefits because the operations are divided into their various phases, departments, and subdepartments; certain men are designated as having authority over the work in each of these divisions; each person knows to whom he is responsible; and the work may be so apportioned that no parts of it are neglected, and no duties are overlapping. A definite understanding as to the form of the organization eliminates many of the conflicts between man and between departments because of misunderstandings as to their status. There is a check on the activities of any persons who would overstep their territory, and the efforts of all employees are more easily directed toward the ends that result in the success of the concern as a whole and of the employees individually.

Summary

THE plan of organization must necessarily depend on the type of work done, the size of the organization, and the personnel available. Careful consideration

should be given to all the factors involved before a definite plan is made. Once established, organization lines should be respected, and the responsibility of supervisor to worker as well as that of worker to supervisor should be recognized. A spirit of cooperation should be encouraged, and all rulebearing should be eliminated.

A definite organization plan provides for an understanding of the lines of authority and responsibility and smooth operation of the concern. The success of the individual members depends largely on the success of the organization as a whole. The proper use of an organization plan eliminates many of the problems of human relations.

In These Days Many Executives are Being Transferred to Distant Cities, and Have a Serious Problem of Locating a New Home. The Idea Described in This Article Seems a Good One. This Magazine of Course Accepts No Responsibility for the Organization Described.

Executives on Transfer

BY WILLIAM GUILD

Transferred Executives Guild
West Newton, Mass.

AFTER the "job analysis" has been made and the "talent analysis" has been completed, and the decision has been reached to transfer a certain man to a distant job, it is to the best interest of the man himself, a confirmation of the judgment of the department head, and a profit to the corporation if this man can arrive and settle down at his new job in the city of his destination promptly.

The usual problem of "moving expenses" incidental to transferring the man and his family are in general carefully provided for by the policy of most employers.

Housing Shortage Developing

THERE is now a tightening up in rental homes available for transferred men in practically every area throughout the country. This gives rise to a brand new problem which the Government is attempting to solve in the case of the Defense workers in the lower brackets up to about \$30 maximum rental. But this does not in any way help solve the problem of transferred men in higher income brackets, and the situation is becoming acute.

It is important that the transferred man (and his family) should locate promptly and happily in the city of his destination in order for him to function competently on his new job.

It is not enough that the transferred man should have his mere transportation expenses, etc., underwritten by the employer—it is necessary to take an enlightened interest in his house-finding problem, and to let him know that the employer does take this interest.

The simple, obvious way to meet this problem is to send information in advance to the city of his destination as to his home requirements.

To save mutual embarrassment it is not wise to expect his new office mates or manager to undertake this duty. It is properly the function of a competent real estate expert to prepare himself in advance to render this service.

Realty Clearing House Formed

IT REMAINED for the Defense Program and the urgent need for transferred men (and their families) to locate promptly in their city of destination to put the spotlight of public attention on the Interstate Realty Clearing House and Rental Home-Finding Bureau known as the TRANSFERRED EXECUTIVES GUILD.

This clearing house was set up with home offices in Boston nearly three years ago to enable various employers to have a central clearing house for their common problem.

In this way although the home left behind by a man transferred by X company might not be the suitable answer to the needs of his successor, it might just suit a man being moved by Y company, and the X company man would fit nicely into the home left behind by the Z company man being transferred to still another city.

Now this clearing house is known and welcomed not only by transferred men (and their wives) but also by worried Sales, Production, Public Relations, and Personnel Managers who are delighted by this practical approach to an old problem. The solution is obvious, simply send through the clearing house information in advance of what a given family will need in the city of destination.

At the present writing this clearing house is prepared to offer service in more than 135 cities and their satellite residential communities throughout the United States.

Real Estate Problems

MOST of the real estate problems of the transferred man resolve themselves into one of three familiar patterns:

1. The man who seeks a rental home.
2. The man who seeks to sell the home which he leaves behind.
- (3) The man who wishes to acquire a new home under the "Rental-Purchase Plan" whereby a new home is selected to be occupied at once, and to be paid for when—but not until—the home left behind has been sold.

As an example of how the problem of the transferred man seeking a rental home was approached in a specific instance by one of the large insurance companies, here is a step by step resume showing the interest which the company took in the problem of one of its branch managers:

A Case Study

ON MARCH 18 the Comptroller from the head office of the insurance company in Hartford, Connecticut, sent a notice giving detailed requirements to the real estate clearing house office in Boston.

This sheet showed that the transferred man was due to be on his job in Charlotte, North Carolina, as of May 1, and that he would be able to visit Charlotte on either April 12 or 19 to look for a home.

The specifications showed the number in the family, living accommodations desired, schools needed, etc., and comfortable monthly rental he could pay, and gave details as to electrical and gas household equipment which he owned in order that the clearing house might warn him in the event that the electrical current, etc., in the city of his destination was different from that in the city of his departure, so that he might be saved the necessity of disconnecting, crating, and transporting useless equipment.

The specification sheet also showed that he owned a grand piano and two large rugs—one 9 x 12 and one unusual size 9 x 15, and that he also owned a large 4 poster bed.

The clearing house office in Boston forwarded a copy to the correspondent in Charlotte (in the larger cities there are several correspondents) who wrote on March 21 to the transferred man assuring him of his interest and ability to serve him.

Accordingly an appointment was made by telegram enabling the transferred man to fly down with his wife over the week end of April 12 to find a home, with a minimum of lost time and waste motion and eliminating all further house-hunting and much unnecessary expense for his employer.

This solution enabled him to return to his home office with his wife quite contented and happy, and his mind freed from further worry on that score, so that he might devote his entire time to the problem of turning over the loose ends left behind in his office to his successor, and to lay his plans for assuming his new duties.

Some Realty Research Findings

THE Transferred Executives Guild Research Department has also gathered information on the variation in gas fuel in various sections of the country to enable a transferred man to be advised in advance if his present equipment is usable in the city of his destination, or whether he had better dispose of it before he moves, or make some simple minor adjustment to adapt his equipment to the new conditions. The variations between various supplies of artificial and natural gas run from 330 b.t.u. per cubic foot up to 3500 b.t.u. per cubic foot. *(5)

The variation in electrical current supply is considerable. It may be either D.C. or A.C. and may run from 25 to 60 cycles and from 50 to 110 volts. Thus possibly rendering it advisable for transferred families to sell certain household electric equipment before they move.

There are also variations in local customs as to whether the landlord or tenant should supply kitchen ranges and/or refrigerators, and also local customs as to who pays for water, and garbage, ash and snow removal. Advance knowledge of these facts enables a transferred man to know exactly what to plan on in his budget.

Book Reviews

Book Review Editor, MR. EVERETT VAN EMBRY
(University of Southern California, Los Angeles, Calif.)

OCCUPATIONAL TRENDS IN THE UNITED STATES

By H. D. Jones, Anderson and Percy L. Davidson. Stanford University, Calif.: Stanford University Press, 1940, 618 pp., \$6.50

Reviewed by Book Review Editor

What is taking place? What industries are expanding? What occupations are contracting? Where are the opportunities appearing for women? For the mechanically inclined?

How are technological developments influencing the number of workers required in various industries? "The conclusions reached by the staff of experts whom the government asked to analyze labor trends in mineral industries is that the advance in technology, the increased mechanization of mining, and the increase in the number of large-scale units of operation, offer real possibilities for the expansion of supervisory and managerial occupations."

Commenting on the slackened growth in many manufacturing classifications, the authors believe that if such conditions "run their course unchecked by altered public policies such as limitation of hours and the establishment of minimum wages, the inevitable result will be an actual as well as a relative decline in the number of workers employed in manufacturing and mechanical pursuits. If this occurs, new workers developed by our expanding populations will have to look elsewhere for employment opportunities."

A common trend in many occupations appears to be a great increase in productivity with a much smaller increase in the number of gainfully employed; fishing is a good example. The development of the cellulose industry in the South may well be a boon to young foresters as well as relieve the sting of the ultimately displaced half-million cotton pickers. In reference to agriculture the authors point out that dairy farm, orchard and nursery laborers, and garden and poultry-yard laborers are increasing in numbers, showing a trend opposite to that of the total group engaged in agricultural labor.

Evidence seems to suggest that American industry is approaching a stage in which greatly increased production is possible without substantially enlarging the labor force or employment opportunities. Indications point to the time, not far distant, when unskilled industrial labor will no longer increase.

Employers have been slow to realize the importance of the problems of supply and demand for workers and the solution of industrial employment in an intelligent manner. In this light the field of personnel management is only beginning to be explored.

In the opening paragraph the authors explain that the study of occupational trends is essential to show the shifts in occupational emphasis and the use that society makes of its workers. No one can call himself a personnel man who is not aware of these changes occurring in the working world and the notable shifts in occupational levels. As much could be said about the business manager who fails to heed the changes occurring in his industry, and the shaping trends and influences that fasten definite limitation or open hidden opportunities.

The book is a detailed study of occupational facts and developments as reflected in the various occupational sub-divisions of the census. Certainly no educator, social scientist or industrial adviser could conceive of a counseling program (for schools or industry) that is not constructed in an understanding of occupational trends. Nor should this study of work changes be founded on any less authentic material than the current census figures. If there ever were a field that needed exploring it is the study of occupational shifting and changing.

This much would seem to be essentially basic in all counseling, no matter how general or loosely conceived. A first hand knowledge of occupational direction—of industrial tendencies and their economic and social implications—is the germ of vocational guidance as we know it today. Anything short of this would be sham. At the conclusion of the book I am more convinced than ever that much of our present student counseling is misdirected. This is not the authors' opinion, but mine, and I think it will be yours. If this book is bringing much of the census information together for the first time, how could we have been doing anything approaching a satisfactory job without such material?

Someone has called this book a monumental contribution to vocational guidance and education. It is no less important to industrial thinkers and planners, to all persons who are engaged in handling our human resources.

WHAT'S PAST IS PROLOGUE

By Mary Barnett Gilson. New York: Harper and Brothers, 1940, 299 pp., \$3.00.

Reviewed by Donald K. Beckley

There have been few personnel workers who, in recent years, have seen fit to recount in book form their experiences. Consequently, an autobiography by Mary Barnett Gilson describing her very active and varied life as a personnel director in industry and as a student of labor relations, is well worth the attention of all who are interested in the development of this broad field.

From the viewpoint of a personnel worker, Miss Gilson's life has in many ways been an ideal one, for she has been able to travel widely, and to institute and follow directly the progress of many of our modern personnel practices.

After a Victorian childhood in Pittsburgh and a degree from Wellesley College, Miss Gilson got her start by selling in department stores, and then teaching in a

trade school in Boston. Beginning in 1913, she spent the following twelve years as employment manager in the progressive Joseph and Feiss Co. clothing factory in Cleveland, a job about which she writes at length and with considerable satisfaction. After the war, Miss Gilson did consulting work in many of the textile mills in New England and the South, and in Hawaii for the Hawaiian Sugar Planters' Association. Later, the study of unemployment insurance took her to England and Switzerland. At present, the author is a member of the faculty of the University of Chicago.

One of the first women in industrial personnel management, Miss Gilson has done pioneer work in a number of areas. Many of the broad policies governing wage payment plans, job analysis, employee representation, and other aspects of personnel administration which are familiar to us now were virtually unknown when her career began. Her formidable task was to set up these policies, improve them through constant study and experiment, and to gain the cooperation of supervisors and workers, many of whom were prejudiced against her at the start because of her sex and the newness of her ideas.

Miss Gilson's book is very readable, and should serve as a practical illustration to the student who may not have fully appreciated how interesting and useful a career in personnel work can be. The executive will find her underlying philosophy of personnel management and her very real interest in the people with whom she worked to be an inspiration toward continued effort for better employer-employee relations in these troubled times.

LABOR LAWS—FEDERAL

CONSCRIPTION—LAW AND REGULATION

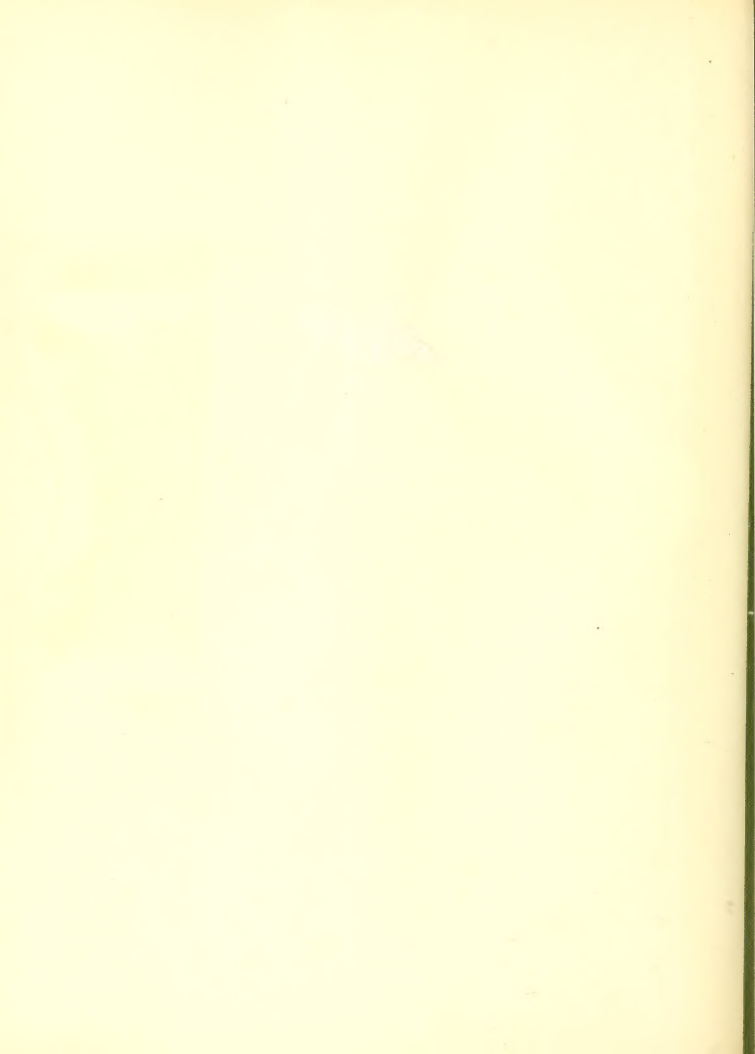
Commerce Clearing House: Chicago, 136, 147 pp., 1940, Paper, \$1.00 each

Reviewed by Book Review Editor

Two troublesome fields for the personnel executive are clearly briefed in these handy books.

Labor Laws—Federal is a concise but complete study of the two federal labor laws—the Fair Labor Standards Act and the National Labor Relations Act. The texts are given in full together with explanations, selected interpretative bulletins, regulations and other general information. Paragraph cross-references connecting the administrative regulations with important provisions of the acts are a big help to the busy reader who needs his information in a hurry. Much of the material has been taken from the CCH Labor Law Service.

Conscription—Law and Regulation reproduces the full text of the Selective Training and Service Act of 1940, National Guard and Reserve Officers Mobilization Act, Soldiers' and Sailors' Civil Relief Act of 1940 and six "volumes" of Selective Service Regulations released to date, and including the Selective Service Questionnaire. This volume is a reprint from the CCH War Law Service.



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